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94th Congress }  
2d Session }

COMMITTEE PRINT

## 1977 U.S. AGRICULTURAL OUTLOOK

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Papers Presented at the National Agricultural Outlook  
Conference Sponsored by the U.S. Department  
of Agriculture—Held in Washington, D.C.,  
November 15–18, 1976

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PREPARED FOR THE  
COMMITTEE ON AGRICULTURE AND  
FORESTRY  
UNITED STATES SENATE

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DECEMBER 10, 1976



Printed for the use of the Committee on Agriculture and Forestry

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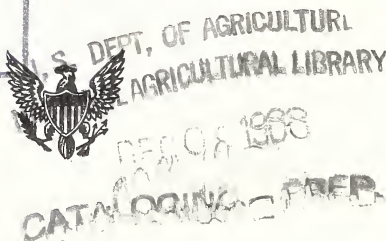
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## FOREWORD

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The National Agricultural Outlook Conference was held in mid-November this year. This Conference is sponsored annually by the U.S. Department of Agriculture to give farmers, those serving farmers and those who process, market, and consume farm products an opportunity to get up-to-date information on production, prices, input supplies, and the demand situation. However, the Conference goes much beyond this and projects the direction and magnitude of agricultural trends for the upcoming year.

The Conference is of particular significance this year because of the convergence of major agricultural and food policy areas requiring congressional attention in the coming months.

The Agricultural and Consumer Protection Act of 1973, applicable to feed grains, wheat, cotton, wool, and dairy products, expires at the end of the 1977 crop year. The 2-year Rice Production Act of 1975 also expires in 1977. Modifications in the existing peanut program will almost certainly be proposed again in the next session of Congress. The authorization for the Agricultural Trade and Development Assistance Act of 1954, popularly known as Public Law 480, expires. In addition the funding authorization (sec. 16) for programs under the Food Stamp Act of 1964 also expires.

Thus, in early 1977 the "agricultural policy" debate will coincide with the "domestic food policy" and "foreign food policy" debates. The change in the economic setting since 1972 now means that the three formerly distinct policy areas have become more closely interrelated. Policy issues from these areas are now intermingled. When new legislation is considered, the traditional concerns of farm prices and incomes will undoubtedly be considered jointly with newly emerging issues.

In the interest of providing the members of the Senate Committee on Agriculture and Forestry, the Senate, and the general public with timely and reputable information regarding the agricultural setting and the outlook in 1977, I have asked that the papers presented at this year's National Agricultural Outlook Conference be published as a committee print. While the views and analyses presented in these papers are those of the authors and not of the Committee or of the USDA, the Committee nonetheless wishes to recognize that these conference speakers are professionals and experts in their respective fields.

HERMAN E. TALMADGE, *Chairman.*

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**U.S. ECONOMIC AND AGRICULTURAL OUTLOOK**

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## 1977 AGRICULTURAL OUTLOOK

(By Hon. John A. Kneble, Secretary, U.S. Department of Agriculture)

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Welcome to the 1977 National Agricultural Outlook Conference.

Let me say at the outset: The future of American agriculture and the American farmer is excellent. Today, the farmer has not only achieved the recognition and reward he so richly deserves, but he has achieved a lot more:

- Record production which enables each farmworker to feed himself and 56 others at home and abroad.

- Record exports which enable him to prosper and America to achieve a favorable balance in international trade.

As we look ahead, let us consider the vast power for good of American agriculture—agripower, if you will—the power to produce and provide an essential of life no one can do without—food—and to improve the quality of life in this complex world where our fate is intertwined with the fate of others.

Without question, the credibility and strength of this Nation abroad rests upon its vast resources and productivity—just as much as it does upon its defenses. And the American farmer is in the front lines of this effort.

The challenge—the heavy responsibility—is nothing new to the American farmer. With sweat and imagination, he has brought agriculture to unparalleled heights—and all of us in this Nation are in his debt.

Today, because the farmer has responded with abundance to expanding markets and his new freedom with governmental controls, agriculture is assuming its rightful place in our international trade relations.

In 1974, America squirmed in the stranglehold of an energy crisis. The farmer came to America's rescue. Freed at last from four decades of governmental controls, some 60 million acres of cropland were released for production. The farmer went into full production, exceeding our domestic needs. In fact, agricultural exports shot to a historical high. That year, America exported \$21.3 billion worth of agricultural products, which was just about enough to pay for the petroleum products we had to import at much higher prices.

America had been suffering trade imbalances. In recent years, because of large agricultural exports, it began recording favorable trade balances. Last year, American farmers exported \$22.1 billion in farm products. Without those agricultural exports, the United States would have suffered a deficit of at least \$8 billion in its trade business. The year before, our Nation would have suffered a \$10 billion deficit if it had not been for agricultural exports.

The projection for U.S. agricultural exports is that they will reach about the same level in 1977 as in 1976. Agricultural production and exports are vital to our economy because the projection for all U.S. trade next year suggests that we will have a large deficit. Imagine how severe that deficit would be without agricultural exports. It is imperative that exports of agricultural products be maintained, and increased if possible.

This is crucial to our national economy and to all of America's consumers. Our agricultural exports will help stabilize our economy and balance our trade with other nations.

The projection for food prices in the United States for 1977 is that they will increase only modestly, well below the overall rate of inflation. American consumers are realizing that their grocery purchases are the best deal in the world. In America, the consumer spends only 17 percent of his disposable income for the best and most nutritious food ever produced. In Russia, by comparison, the consumer is spending 37 percent for food—and the Russian consumer doesn't get nearly the selection, the quality, nor the built-in services that the U.S. housewife gets in her food.

In this regard, we must look carefully at regulations and proposed regulations on America's food producers and handlers. Superfluous and needless regulations will add unnecessarily to the prices that American consumers will have to pay at the grocery stores.

Expanding our agricultural exports results in another benefit which is often overlooked. Agricultural exports boost employment in the economy. More than 50,000 jobs are created for every \$1 billion of agricultural products exported. Agriculture, the Nation's biggest industry, employs nearly 17 million persons from production on the farm to the sale of the food. Also, every \$1 received from agricultural exports generates \$2.20 spending in our economy.

Based on these facts and experiences, we are optimistic about the outlook for 1977.

But the current law requires that by May 15 the new Congress must report a new farm program which could affect to some extent 1977's outlook and greatly affect production in the following years.

At this time, it is impossible to forecast what the Farm Bill of 1977 will contain. We hope it will continue the market-oriented farm program now on the books—a program which has produced record income for farmers, record exports, record production—and a minimum of governmental interference in the daily lives of farmers.

However, Congress may move in another direction. Some have repeatedly called for the establishment of significant commodity reserves and export licensing where those reserves fall below certain levels. This, of course, requires more Government control and puts the Government in competition with the farmer when it's time to liquidate those reserves. Still others have called for reserves with a mixture of Government and private ownership, and for much higher target and loan prices tied to a cost of production formula. The difficulty is in establishing a cost of production—there are many levels to the cost of production depending on farm size, locality, management, the year and other factors. The problem will be to base supports on "a cost of production" without encouraging excessive production that will lead to Government accumulation of surpluses, followed by Government controls on farm production.

Many in Congress would like to extend the farm program as it is, with upward revisions in target prices that have been eroded by inflation. Some want to see the farm program more consumer oriented with "cheap food" for domestic consumers and for contribution to foreign nations—with less emphasis on profitability for the farmer. There's a big job ahead—for the new 95th Congress.

We must also look at the problems of disaster assistance. One approach would be to expand the disaster programs of the Government; another would be to expand the availability of crop insurance.

I expect the Farm Bill of 1977 may well be a compromise, because of the complexity of the issues, the significant support by the farmers of this country for the free market farm program, and the division in Congress over alternative programs. Perhaps we will have a simple extension of the current law with some revision in target prices. We will probably see an expansion of the crop insurance program, and it is unlikely that the ASCS disaster program will be totally eliminated.

Looking back again for a moment so we can see better what is ahead of us, there has been a mass migration since the industrial revolution from rural areas to the cities. That migration reached a peak during the 1960's when America was losing 100,000 farms a year. So far in the 1970's, that loss has drastically declined to about 27,000 farms per year. Today, there are approximately 2.8 million farms. But the fact remains that less than 5 percent of the U.S. population today lives and works on our farms compared with about 25 percent 49 years ago.

Obviously, U.S. Senators and Congressmen represent many more city folks than farmers—and city folks consume most of the farmers' output. Fifty years ago, there were 251 Congressional Districts in which the farm population constituted 20 percent or more of the total. Today, there are only 49 Congressional Districts with 20 percent or more farm population.

It is, therefore, important that we focus the economic spotlight of the Nation on agriculture and the importance of sound programs that provide growing export markets and ample food for American housewives at reasonable prices. Members of Congress and consumers need to weigh the importance to farmers of having a profitable business if they are going to continue to produce adequate food for the future, maintain the Nation's resources, and invest in modern methods in order to maintain their efficiency. The case for agriculture must be well presented and understood so this small but crucial segment of our society is not relegated to its previous plight through which it suffered for so many years.

If there is no reasonable reward for the farmer's risks and efforts, farm production will surely diminish. If production declines, prices for food and fiber will soar, and our economy, as well as the economies in the rest of the world which depend on us for their food, and which depend on us to purchase their goods from our food exports, will suffer the dreadful consequences.

During the last few years, the farmer has once again demonstrated the importance that agriculture holds for each of us, our Nation and the world. The outlook for 1977 is that the farmer will continue to fulfill this crucial responsibility which he has willingly assumed, if we fulfill our responsibility to him.

## U.S. ECONOMIC OUTLOOK

(By Burton G. Malkiel, Member Council of Economic Advisers)

---

The economic expansion during the past 18 months can, I think, correctly be described as a typical business cycle recovery. It is typical first because it has been relatively sharp as one would have expected given the severity of the 1974-75 recession. Real growth during the last six quarters has proceeded at a rate of 6.3 percent. Since the trough of the recession 3.7 million people have found new jobs and record numbers of Americans, close to 88 million, are currently employed.

The recovery has also been much like other cyclical recoveries in that the pattern of growth has not been smooth. We had an initial sharp advance in the summer and fall of 1975 as the massive inventory liquidation of early 1975 all but came to a halt. During the fourth quarter of 1975 there was a brief shift back to fast decumulation. As a result the growth rate of real GNP diminished to 3.3 percent. You will recall at that time that press reports frequently expressed doubts as to the strength of the economy in 1976. Our own projection last year of a 6.2 percent growth rate for 1976 was widely doubted. Then in the first quarter of 1976 the growth rate shot up to 9.2 percent as modest inventory rebuilding replaced inventory liquidation. At that time fears were raised that the boom might have gotten out of hand and that capacity shortages would be realized in the near future. But then inventory behavior stabilized again and the rate of growth in the second and third quarters of this year fell to  $4\frac{1}{4}$  percent. The growth in final sales over the whole period has been much steadier. Final sales grew at a 4.3 percent annual rate in the past two quarters, not much below the 4.6 percent rate of the proceeding four quarters.

Despite the fact that it is typical for the pattern of recoveries to be jagged, there has again been considerable consternation—that the recovery may be in danger. Much publicity has been given to the fact that the slower growth phase in economic activity has now continued for half a year. The third quarter growth rate in real GNP was only 4.0 percent—somewhat below our mid-year projections and significantly below the growth in earlier quarters. The unemployment rate has risen from 7.3 percent in May to 7.9 percent in August and remained at that level in October. Moreover industrial production has declined in the last two months and the index of leading indicators declined in each of the past 2 months. These recent reports have led many to question whether the economic recovery is in trouble and if sustained expansion is possible over the remainder of this year and into the next.

I would like to spend most of my time today discussing these recent doubts. In the process, I will describe the economic outlook as we see it for next year.



We believe that the recent slowdown is neither unusual nor permanent. While we are disappointed by the continuation of sluggishness in the economy, we are convinced that a reacceleration of economic growth will soon be underway.

Our optimism is based on an expectation of an acceleration in consumption expenditures, a very sharp pick-up in business fixed investment and strong increases in residential construction. Let me discuss each of these elements in turn.

Monthly data on consumption indicate a leveling in real terms since late spring that surprised nearly all forecasters. Auto purchases stagnated in part because of shortages of preferred models, the strike at Ford Motor and consumer resistance to price increases. Moreover, sales of nondurables—particularly apparel and shoes appear to have been very sensitive to price increases. At the same time the rise in real disposable income shrank to less than a 1½ percent annual rate, largely because of declining farm net income. With auto shortages disappearing coupled with price decreases or rebates likely to boost auto sales and with real disposable income growth expected to pick up, the recent slowdown in consumer spending is not likely to persist. We believe that consumption will soon resume its growth and help sustain the economic expansion in coming quarters.

Business fixed investment has grown at a relatively modest 7.9 percent rate so far this year but appears to be set for substantially larger increases in the months ahead. Indeed investment in plant and equipment will provide a major source of strength for the expansion in 1977 and should make up for more modest increases expected in inventory investment. For some time now the fundamental factors supporting business investment have been highly favorable. Final sales have been rising. Business profitability and cash flow have improved substantially. Profits will be up about 30 percent this year and we project a further 15 percent increase next year. Equity and bond markets are more favorable for financing and business balance sheets have been materially strengthened. More recently, the leading indicators of business investment spending have shown significant increases. New orders for nondefense capital goods rose 7.7 percent during the second quarter. The monthly figures have been quite volatile in July and August—rising sharply in July but falling about the same amount in August. This August drop helped push the leading indicators down. Still the average for July and August is 11½ percent above the average during the first half of the year. Moreover, the September figures showed a strong gain over August. This is indicative of a strong rise of investment in the next four quarters. Our optimism is confirmed by the Conference Board data on new capital appropriations by manufacturers in the second quarter, which rose 13.2 percent, and by the value of plant and equipment projects started by manufacturers last quarter, which rose 13 percent by the second quarter from their low in the third quarter of last year. Moreover, the McGraw-Hill survey projects a 13 percent increase in business plans for capital spending next year. This survey usually undertakes investment spending in years of expansion. Thus, a healthy increase in business fixed investment over the coming quarters seems assured.

Housing is another area from which we expect substantial strength. The recovery in the housing sector now looks particularly strong and

this in turn will have favorable influences on other sectors of the economy. During the third quarter the housing recovery accelerated sharply as the 11 percent increase in total starts in August was followed by an even healthier 18 percent increase in September to a level of 1.81 million units. The average level of starts during the third quarter was 1.58 million units, a 10 percent increase over the second quarter as compared with an average 2 percent increase in the first two quarters of the year.

The very high September figure does not appear to be a one-shot aberration. Permits plus starts outside permit issuing places reached a level of 1.82 million units in September, slightly greater than total starts in that month, and thus an indication that high levels of starts are likely to be sustained in the months ahead. Moreover, Federal assistance programs will continue to support multifamily starts in the year ahead. Financial developments have also been encouraging for the housing recovery as both short-term and long-term interest rates have been declining. The yield on new home mortgages in the secondary market (FHA) fell for the third consecutive month in October to 8.82 percent. Moreover, funds for mortgages are readily available and this should encourage further building.

Thus, there is no reason to doubt the underlying durability of the recovery. Consumption should show substantial gains, and residential construction should continue its sharp recovery from the low levels of 1974. Even without any additional fiscal stimulus, the quarterly pattern of real growth should expand to a 5 percent rate in 1977.

I think it is important to note that there is no indication of any of the imbalances which normally portend a future weakening in the economy. While there has been a bit of unwanted inventory accumulation in some nondurable goods sectors, inventories overall are not high—they are low in relation to production and sales. Moderate further growth in inventory accumulation can occur without an increase in inventory to sales ratios. Consumers have not been on a spending binge, their balance sheets have been substantially repaired, and gains in consumer confidence have recently been registered according to the University of Michigan survey. Retrenchment by consumers and businessmen under these conditions is not likely. Indeed, the very caution of businessmen and consumers is a healthy sign for the durability of the recovery. By keeping the economy from overheating, their actions help contain inflation which has been proceeding this year at only a 5 percent rate, allow time for capital spending projects to expand capacity and retard the emergence of new imbalances. Thus, I believe the current pause is not the precursor of a period of economic stagnation but should soon be followed by a reacceleration of economic activity.

Let me turn finally to the question of government spending which has received much attention in the press and to the issue of policies for next year. Federal government expenditures in the last two quarters were below budgeted levels, and this "shortfall" has been viewed as the culprit responsible for the slowdown in real growth. It is important first to state that the magnitude of the shortfall has been greatly exaggerated in the press. In the first place, part of the discrepancy which appeared in the second quarter was added during the mid-year budget review to spending estimates for the third quarter



and thus were in effect counted twice. This double-counting inflated the estimate shortfall by about \$4 million over the past two quarters. Secondly, the figures quoted in the press relate to the Unified budget, whose numbers are affected by purely financial transactions which do not affect the current level of real activity. For example, sales of offshore oil-land leases in the third quarter were \$800 million higher than expected and HUD sold an unanticipated \$900 million of mortgages from its portfolio. Both transactions show up as a lower level of outlays on a unified basis, but neither has any direct effect on GNP because they are simply financial transactions representing transfers of assets.

Briefly, the facts on the shortfall are these. In the National Income Accounts budget—the budget which shows the impact of the Government sector on the economy—Federal spending in the second quarter was \$3.2 billion below the January estimate (quarterly rate); for fiscal 1976 as a whole, actual expenditures were about \$3.8 billion below target. In the third quarter, spending was actually \$.4 billion above the original estimate made in January.

While a proper accounting shows that the underestimate of Federal spending was relatively modest and is well within the normal statistical margin of error, it *was* concentrated in the second quarter.

Moreover, the NIA budget may understate the full impact of the budget on the economy since defense expenditures are included in NIA totals only when the final payment is made. During 1976 there have been substantial shortfalls in defense obligations which have a more immediate impact on the economy. When this is combined with the unusually sluggish growth in State and local spending earlier this year, there was an unplanned net reduction on the stimulative impact of the Government sector on the economy—particularly in the second quarter—and this may well have contributed to the slowdown of the expansion.

The question now is what should be the appropriate policy response—if anything—to insure that the expansion returns to a path of faster growth. Federal spending already appears to have returned to its targeted level in the third quarter. We also expect spending by State and local governments to pick up noticeably in the future, in view of the improvement in their financial situation. Thus all signs indicate that the Government sector will be exerting a more expansive impact on the economy over the next two or three quarters.

Nevertheless, it is clear that fiscal policies must be designed to provide sufficient stimulus to the economy so that real growth can proceed at a fast enough rate to reduce the margin of excess capacity in the economy and to lower the unemployment rate to acceptable levels. Thus, a tax cut such as the additional \$10 billion tax reduction originally proposed by President Ford in last year's budget must certainly be considered.

In designing fiscal policies for the period ahead, however, two factors should be kept clearly in mind. First, excessive fiscal stimulus must be avoided. Overly expansive fiscal policies which threaten to intensify inflationary expectations and fears of new instability could prove counterproductive by causing both consumers and businessmen to cut back on spending plans. Secondly, the type of fiscal measures chosen must be consistent with the need to stimulate investment as

well as consumption. A major reason for the sluggishness of the economy is that major long-term investments by corporations in plant and equipment have been disappointingly slow. Over the longer run, substantial increases in business fixed investment are essential if we are to have enough factories and tools to employ all those who seek work and if we are to encourage the kind of productivity increases necessary to increase real living standards and to provide adequate supplies of goods and services over the longer term. The encouragement of investment is thus an essential step in the control of inflation and in returning our economy to a path of stable growth.

## AGRICULTURAL OUTLOOK FOR 1977

(By Rex F. Daly, Outlook and Situation Officer, Economic Research Service, USDA)

---

Prospects for continued large supplies of crops and near record livestock production in the coming year will face an expanding domestic market and another year of near record exports. These conditions will help to bolster prices and farm incomes in 1977, despite large supplies.

Crop supplies will continue large relative to demand in the 1976/77 marketing year, except for soybeans, cotton and some fruit and vegetable items. Output of livestock products will be large, but increases will likely taper off and decline later in the year if cattle numbers and beef production drop off as expected next year. Prospects for next year's crop are uncertain. But barring unexpected weather developments, the crops should be large again, with some shifts in the acreage of major crops. There are no program restraints for major crops and large supplies of fertilizer and other inputs are available.

U.S. growers are completing the harvest of this year's big crops, giving us two big harvests back-to-back. Livestock production also is at a record rate culminating a recovery from the depressed output rate early in 1975. With large supplies and strong domestic and foreign markets, most farmers have completed one of the highest income seasons of record. However, it was not a good year for some cattle operators and producers in drought areas. The consumer also enjoyed big gains in per capita use of meats and poultry in a year of amazingly stable retail prices for food.

Currently, farm prices and incomes are running at a rate somewhat below earlier this year and below the last half of 1975. Recent price weakness is expected to bring net farm income this calendar year down to around the 1975 level—with a modest gain in realized net farm income and perhaps a small decline in total net income, depending on what farmers finally do about inventories.

In looking ahead to the latter part of 1977, although the band of uncertainty is wide, returns to farmers will likely be better than the last half of 1976 and early 1977. If crop output is maintained around the level of the past 2 years and livestock numbers decline as expected, producers of livestock products may be in a stronger income position compared to this year and relative to the crop producer. For the calendar year 1977, the above income pattern would suggest average net farm income much the same as this year.

Major uncertainties for 1977 center about the expansion in domestic markets, weather and growing conditions here and abroad, and the impact of the downswing in the cattle cycle on supplies and prices of

meats. Obviously, the outcome of these uncertainties can have major impacts on the income and general prosperity of U.S. farmers, especially later in 1977 and in 1978.

In support of this income outlook, I would like to explore with you a broad brush sketch of what I see as the agricultural outlook for 1977. Domestic and foreign demand conditions are being discussed in some detail in this session. Other sessions will further discuss foreign economic developments, farm costs, and the weather as well as the outlook for major commodities in considerable detail.

#### DOMESTIC DEMAND CONDITIONS

Consumer buying power and the demand for food, textiles and other finished goods of farm origin have expanded rapidly over the past year. This expansion reflects the recovery in the economy from the most severe economic recession in the past quarter century. The economy absorbed last year's big crop and a rapidly expanding output of fed beef, poultry, pork and dairy products. Per capita use of food this year will total 2 to 3 percent larger than in 1975 with most of the increase in beef and poultry. Larger supplies have eased the farm price of foods and materially slowed the rise in retail food prices despite expanding domestic demand. Per capita nonfood uses of farm products also have increased with mill use of fibers up around a tenth from 1975.

Although the current pause in U.S. economic activity provides reason for concern about the health of the economy, this appraisal reflects prospects for continued economic growth and a reasonably well balanced recovery through this year and in 1977 (table 1).

TABLE 1.—GENERAL ECONOMIC DEVELOPMENTS AND OUTLOOK FOR 1977<sup>1</sup>

[Dollar amounts in billions except per capita]

Item	1975 January to June	1976 estimate		1977 projection, <sup>2</sup> percentage change from year earlier	
		January to June	July to December	January to June	July to December
Gross national product.....	\$1,464.0	\$1,657.0	\$1,732.0	11	12
Price level (1972=100).....	125.2	132.1	135.4	5½	6
Real output.....	1,169.0	1,253.0	1,279.0	5	6
Consumer income after taxes.....	1,056.0	1,160.0	1,204.0	10	11
Income per capital (dollars).....	4,956.0	5,401.0	5,584.0	8½	10
Real income per capita (dollars).....	3,984.0	4,123.0	4,159.0	3	5
Consumer expenditures.....	947.0	1,054.0	1,102.0	10½	10
Food and beverages.....	206.0	220.0	230.0	9	11
Clothing and shoes.....	68.0	73.4	76.3	4½	8

<sup>1</sup> Based on background account data from Survey of Current Business.

<sup>2</sup> Seasonally adjusted annual rates.

The U.S. economy is still in the process of moving toward greater stability. Although the pace of recovery may be somewhat short of our expectations and hopes, the recovery is reasonably consistent with this phase of past cycles. Employment has increased, albeit not rapidly enough to employ the post World War II baby boom now in the labor force plus the growing percentage of women moving into the work force. Price inflation continues to slow due largely to the slower rise

in retail food prices. Unfortunately, prices of nonfarm goods continue to rise about twice as fast as food prices. An easing of inflationary pressures can be a major force in restoring the confidence of consumers and investors and in bringing about a well-balanced recovery in the economy.

Expanding employment, rising after-tax incomes and gains in real consumer buying power will expand domestic demand and bring further gains in food consumption, in the demand for fibers and other nonfoods, and in the use of feed for livestock.

#### FOREIGN MARKETS FOR FARM PRODUCTS

Foreign markets for U.S. farm products are still promising despite general improvement in world grain crops. World grain production in 1976-77 is expected to total around 6 percent larger than a year earlier. Wheat, in particular, is in abundant supply with the world crop up about 15 percent from 1975-76. Much of the gain in the world grain crop is in the U.S.S.R. where the larger crop may cut Soviet purchases from 1976 crops by half. Grain production also increased in the major grain exporting countries. However, drought damaged grain and fodder crops in Europe, and the South Asian monsoon was disappointing. Grain production in the world, excluding the U.S.S.R., is estimated slightly below 1975-76 (table 2).

TABLE 2.—WORLD GRAIN PRODUCTION AND TRADE IN COUNTRIES OTHER THAN U.S.S.R., 1972-73 TO 1976-77 <sup>1</sup>

Years	Area, (millions hectares)	Yield, (metric ton)	Million metric tons			
			Production	Beginning stocks	Consumption	Gross exports
1971-72.....	571	1.67	953	165	949	108
1972-73.....	566	1.75	990	161	1,015	146
1973-74.....	583	1.78	1,039	116	1,040	155
1974-75.....	587	1.73	1,015	110	1,016	140
1975-76.....	604	1.80	1,087	107	1,046	168
1976-77.....	614	1.76	1,082	122	1,064	151

<sup>1</sup> Includes coarse grains, wheat, rice (milled) and some minor grains.

A 15 to 20 million metric ton decline in world grain trade is expected in the 1976-77 marketing year, so U.S. grain exports will face stiff competition from larger exportable supplies abroad. On the other hand, exports are being encouraged by improving feed/livestock price ratios, by economic recovery in both developed and developing countries, and by the need in many countries to rebuild small carryover stocks.

U.S. grain exports in 1976-77 may be down from record 1975-76 shipments of 83 million tons, and grain export prices will likely average lower. Soybean exports are likely to decline because of smaller domestic supplies. However, strong recovery is expected for exports of cotton. The total volume of agricultural exports will likely be down some from the record volume shipped in 1975-76 (table 3). But with tight supplies and higher market prices for soybeans, fibers, tobacco, and some other crops, the value of agricultural exports is expected to at least match the record level of recent years.



TABLE 3.—U.S. EXPORTS OF SELECTED GRAINS AND SOYBEANS, MARKETING YEARS, 1974-75, 1975-76 AND PROJECTIONS FOR 1976-77

[In million metric tons]

Commodity	1974-75	Estimated 1975-76	Projected 1976-77
Feed grains.....	35.7	49.6	43.0 to 51
Wheat.....	27.7	31.9	27.0 to 33
Rice, rough.....	3.2	2.6	2.5 to 3
Soybeans.....	11.5	15.1	13.5 to 15
Total.....	78.1	99.2	86.0 to 102

## LIVESTOCK SUPPLIES AND PRICES

Last year an expanding domestic market, big gains in prices of livestock products, and the record 1975 grain crop initiated a sharp upturn in livestock feeding. By the closing months of 1975, farmers were placing more cattle on feed, increasing their pig crops, raising more broilers and feeding more grain to their dairy cows. This step up in feeding led to increases in production of livestock products that extended through 1976. The gains have been rapid enough to reduce animal product prices this year despite the expanding domestic market.

In the first half of 1976 the market was taking about 10 percent more beef and 14 percent more poultry than a year earlier. Livestock product prices averaged a little below the strong prices in the last half of 1975, but were still 14 percent above a year earlier. Part of the strength in demand for beef and poultry in the first half was due to the reduced level of pork output.

*Outlook, 1976-77*

Output of livestock products continues to expand in the July-December period this year. The increase reflects a big gain in pork output and further but slower advances in output of beef, poultry, and milk. Combined output is rising to a rate more than 7 percent above second half 1975, putting downward pressure on prices of all major livestock products. Accordingly, prices in July-December this year may average around 7 percent below a year earlier (figure 1).

Beef output continues to expand, but losses by cattle feeders much of this year led to reduced placements of cattle on feed this summer. This and the downphase of the cattle cycle is expected to lead to less beef output next year and strengthening prices for cattle. But the sharp upturn in hog production from mid-1976 will extend at least through mid-1977 at a rate about a fifth above a year earlier. Broiler output and milk production also is expected to rise further early in 1977, but much more slowly if the expected tightening price-cost squeeze reduces producer returns. The sizable gain in pork output, and a little more poultry, about match the expected cutback in beef output in first half 1977. By the last half of 1977, tonnage of meat and poultry produced could run 3 percent or so below the last half of this year. This tapering off in supplies of meats and poultry, with an expanding domestic market, should strengthen livestock product prices later next year. The gain in milk production also is expected to slacken in the coming year as lower milk prices and the return to surpluses of some dairy products slow output gains (table 4).

TABLE 4.—PRODUCTION AND PRICES OF LIVESTOCK PRODUCTS, 1973 TO 1976 AND PROJECTIONS FOR 1977

Commodity	1974-75		Estimated 1975-76		Projected 1976-77	
	October to September	Annual 1975	October to September	Annual 1976	October to September	Annual 1977
Beef (billion pounds).....	23.39	23.66	25.53	25.59	24.10	23.75
Pork (billion pounds).....	11.90	11.31	11.46	12.03	13.40	13.50
Broilers (billion pounds).....	7.78	7.97	8.79	9.00	9.10	9.10
Eggs (billion eggs).....	64.3	64.3	64.6	64.8	65.5	65.9
Milk (billion pounds).....	115.1	115.5	118.9	119.6	120.2	120.6
Total output index (1974=100).....	98.7	98.0	103.5	104.1	104.6	103.6
Prices received by farmers (1967=100).....	164	172	182	177	170	175

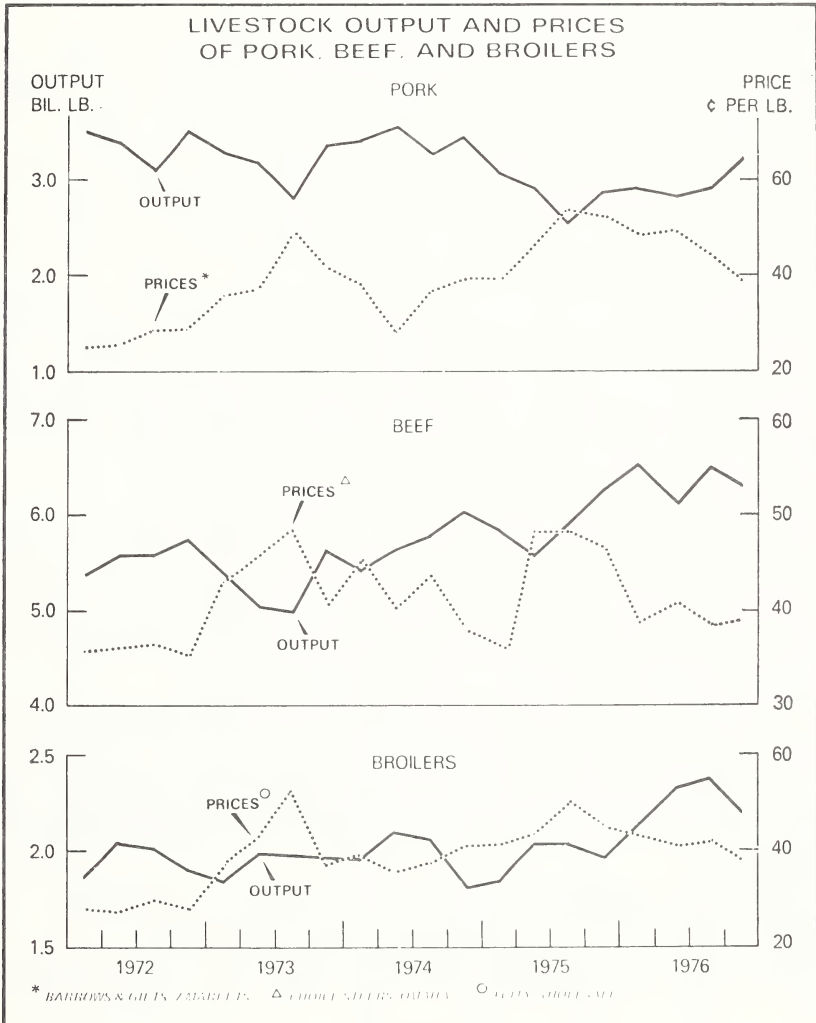


FIGURE 1

## CROP SUPPLIES, USE AND PRICES

Dry weather in a few areas reduced this year's crop from the big gains indicated earlier in the season. However, despite drought problems in some areas, grain crops in general are as large as the big 1975 crop. In addition stocks carried into the 1976/77 marketing year are larger, but most of the increase was in wheat. Wheat supplies are large relative to prospective market and in early November market prices (No. 1 Hard Winter, Kansas City) averaged around a fourth below mid-November a year ago. Corn prices (No. 2 Yellow, Chicago) were also running lower by around 7 percent. But reduced production of hay and forage crops has materially tightened supplies and increased hay prices compared with last fall.

This year's soybean crop was off 18 percent from 1975. This reduction materially tightened supplies relative to demand and market prices (No. 1 Yellow, Chicago) in early November were running about 40 percent above mid-November a year ago.

The cotton crop is about one-fifth larger than last year's crop, although increased domestic use and a strong foreign market reduced carrying stocks and sharply increased cotton prices. The market price of cotton (spot price,  $1\frac{1}{16}$  in early November was up more than 50 percent from mid-November last year.

Although the outcome for a few crops, mainly cotton and some fruits and vegetables, is still uncertain, it appears that combined crop output this year will fall a little short of the big 1975 crop. Production of crop food commodities will be down, perhaps 2 or 3 percent from 1975. However, production of nonfood crops may be up some since the larger cotton crop will offset the reduced output of tobacco and hay and forage (figure 2).

*Outlook, 1976-77*

In looking ahead to the coming year, the crop supply picture is mixed. Grain supplies look large enough to provide for expected increases in domestic use and exports near the record volume shipped in 1975-76. Wheat prices will likely continue lower and the season average price for corn may average a little below last year. Wheat supplies are large and prices are low enough relative to feed grains that a sizable increase is expected in the feeding of wheat.

Feed use of all grains will increase in the coming year, but perhaps only about half as much as the 10 percent increase estimated for the 1975-76 feeding year. The big output increases underway for hogs will require substantially more grains for feed. However, prospective cuts in beef production and slower gains in production of poultry and milk will moderate the demand for feed grains in the 1976/77 feeding year (table 5).

Exports of wheat and the major feed grains may fall a little short of their record 1975-76 volume. Thus, prospective use points to a further buildup in wheat stocks, but a somewhat closer balance for corn. Soybean and cotton supplies will continue tight and stocks will likely



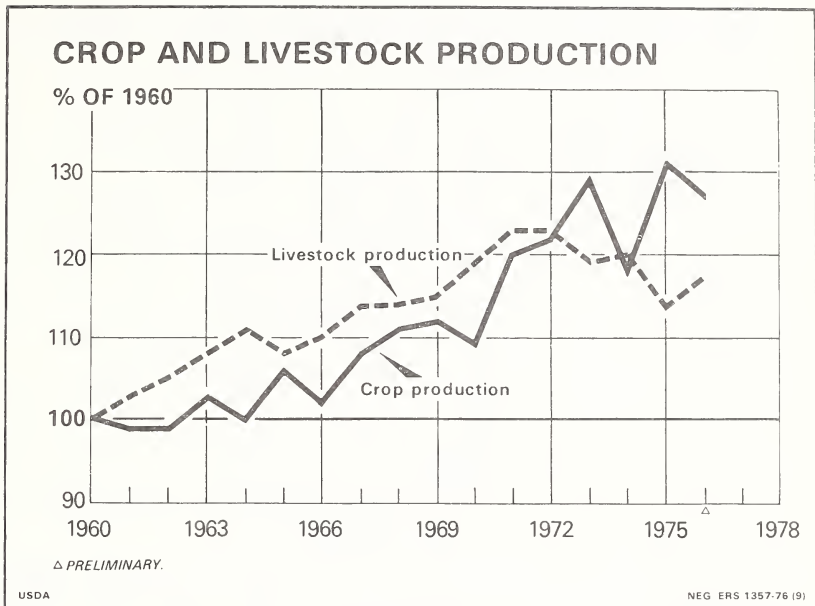


FIGURE 2

be drawn down to minimum operating levels by the end of the 1976-77 season (figure 3).

Crop prices overall for the 1976/77 marketing year (generally October-September) may average a little above 1975-76 prices, barring the unexpected in U.S. and world crop developments. The gain would reflect prospects for higher prices for soybeans, fibers, tobacco, and for some fruit and vegetables, but some easing in grain prices.

TABLE 5.—MAJOR CROPS: SUPPLIES, USE AND PRICES 1974-75, 1975-76 AND PROJECTIONS FOR 1976-77 <sup>1</sup>

Crop	Production	Domestic use	Exports	Ending stocks	Season average price (bushel)
<b>Corn (million bushels):</b>					
1974-75.....	4,664	3,641	1,149	359	\$3.03
1975-76 estimated.....	5,767	4,029	1,700	399	2.55
1976-77 projected.....	6,063	4,100-4,400	1,500-1,700	475-675	2.20-2.60
<b>Wheat (million bushels):</b>					
1974-75.....	1,796	690	1,018	430	4.09
1975-76 estimated.....	2,134	729	1,175	664	3.52
1976-77 projected.....	2,127	760-830	950-1,150	860-1,040	2.60-3.20
<b>Soybeans (million bushels):</b>					
1974-75.....	1,215	701	421	185	6.64
1975-76 estimated.....	1,521	866	560	244	5.00
1976-77 projected.....	1,252	760-820	510-570	60-110	6.50-7.50
					Cents per pound
<b>Cotton (million bales):</b>					
1974-75.....	11.5	5.9	3.9	5.7	42.9
1975-76 estimated.....	8.3	7.3	3.3	3.7	50.0
1976-77 projected.....	9.9	6.3-6.9	4.0-4.6	2.7-3.3	-----

<sup>1</sup> Marketing year beginning June 1, formerly July 1.

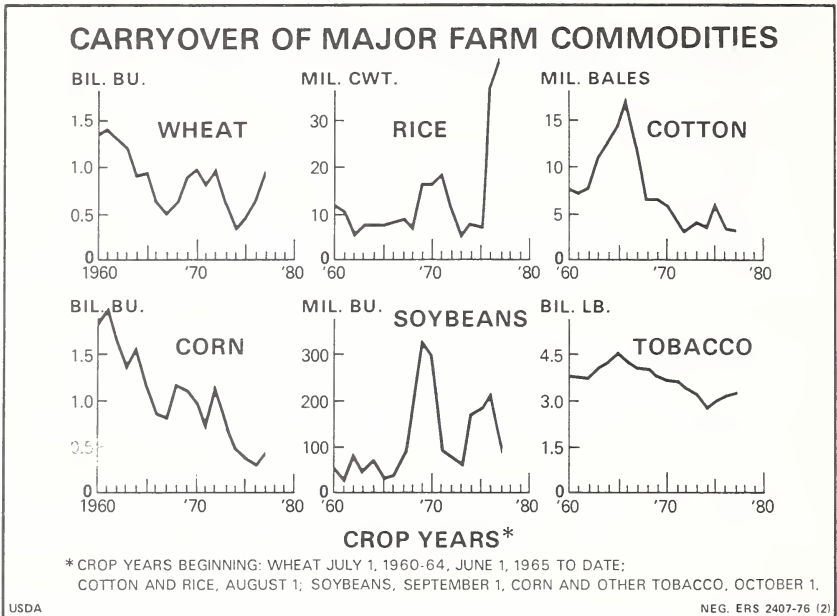


FIGURE 3

#### *Prospects for 1977 crops*

Crop and livestock product prices, livestock feeding and breeding plans and the producers' management of their inventories by next summer will hinge importantly on the size and progress of the 1977 crop. Despite many uncertainties, some useful insights can be gleaned about the size and mix of next year's crops.

Again this year there will be no restrictions on plantings of the major crops. Our appraisals of how producers respond to program and economic incentives point to increased plantings of soybeans. The increase may be around 4 or 5 million acres from the 50 million planted this year. Plantings of cotton also are expected to be larger in response to cotton's continuing tight supply-demand situation. As usual plantings of both crops could be influenced by weather conditions at planting time.

Acreage planted to corn and other feed grains will likely decline some from the large 1976 plantings. Much of the decline will reflect

a loss of acreage to soybeans and possibly cotton in some areas. Little overall change is likely in plantings of wheat. Even if we correctly anticipate the changing mix for major crops and perhaps a small increase in total acreage, weather conditions can knock producers' plans into a cocked hat. Unfortunately, I know no way of accurately prognosticating what the weather may be at critical times during the year in order to assure adequate soil moisture, good planting and growing conditions, and favorable weather for harvesting the crop. Nor can we anticipate the possible onset of disease or insect infestations that could destroy the crop or seriously reduce yields.

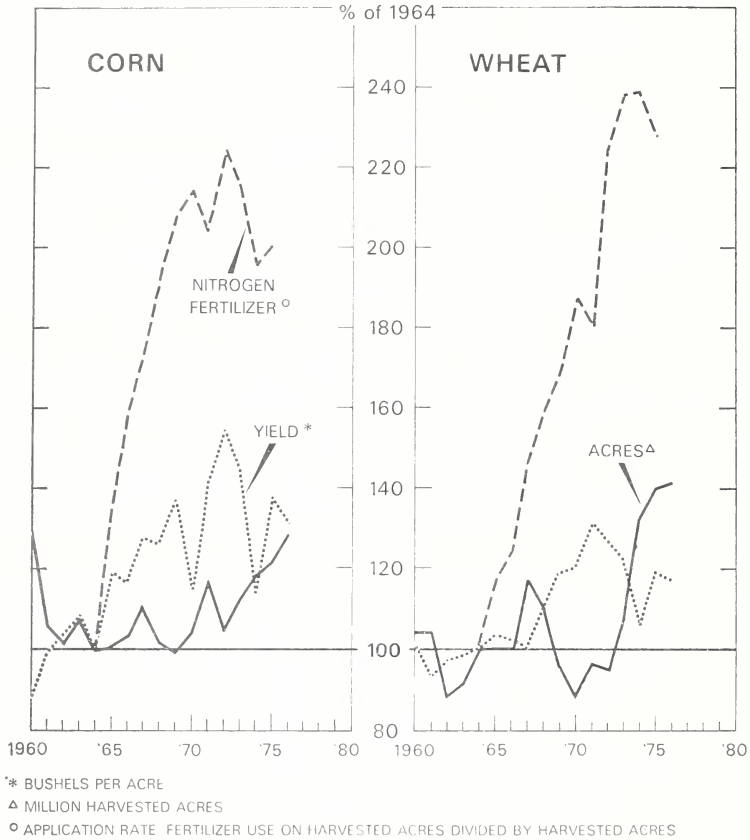
In considering yield prospects for next year or the next few years, an examination of yield variations in the past 5 or 6 years is not too reassuring. For major crops (other than fruits, vegetables, potatoes, etc.) yields from the early 1950's to the last half of the 1960 decade display a positive uptrend with relatively small annual variations. Beginning around 1968 to 1970, yield trends flatten out or decline and annual variations widen (figure 4).

Econometric analyses of factors influencing yields show that weather variations are important and may be even more important if it were possibly to better quantify relevant "weather" characteristics affecting yields. But there are other important forces impacting on yield trends and variations. The price of the product relative to costs and related inputs of fertilizer, supplementary water, and other inputs also affect yields. Moreover the total acreage planted to the crop affects the yield.

Undoubtedly the leveling or slow decline in yields in the past 5 or 6 years was related directly to the higher cost and reduced applications of fertilizer and to the substantial increases in plantings of some crops as acreage set aside under earlier programs came back into use, mostly since 1972. Obviously, the wide annual swings in corn yields also reflect the blight in 1970, excellent growing conditions in 1972, and rather widespread unfavorable weather for crops in 1974.

In speculating about the size of the 1977 or 1978 crop, we can do little more than assume yields. For example, for the 1977 crop feed grain tonnage could vary from 175 million short tons under "poor" yield assumptions to around 230 million tons under "good" yield assumptions. Since this range compares with a 1976 feed grain crop of over 200 million short tons, either end of the production range would likely lead to problems, depending on world demand conditions. But surely the problems associated with the large crop would be minor compared with those that may arise from a very short crop.

## CROP YIELDS AND RELATED DATA



USDA/ERS

November 1976

FIGURE 4

Farm price and income prospects for this appraisal of the outlook for 1977 are not based on the wide swings in yields just outlined. Instead projected plantings and yields reflect prospective price-cost relationships, a relative abundance of fertilizer, and "average" growing conditions. Accordingly, a crop modestly larger than this year's is assumed for 1977.

## FARM INCOME SITUATION AND OUTLOOK

The substantial gains in output and the volume of farm marketings, with higher average prices for livestock products, resulted in a record gross income flow to farmers in 1975-76. However, rising production costs limited gains in net farm income. Net incomes of farmers in 1975-76 were well above the relatively low returns in 1974-75 and the third highest of record. Even with the recent slack in prices, a strong demand is moving record supplies of livestock products into markets. This is helping to maintain gross income in the closing months of this year despite larger supplies. As a result, the gross farm income flow for calendar year 1976 will likely total 5 or 6 percent larger than in 1975.

In the coming year, the volume of marketings will rise more slowly, at least until 1977 crop developments begin to influence markets. Prices in calendar 1977 may average much the same as in 1976 for both livestock products and crops, depending on the outcome of 1977 crops. Indicated changes in marketings and prices for 1977 suggest modest gains in gross farm income with increases over this year most likely for livestock products if output eases as expected later in the year (table 6).

*Farm inputs and production expenses*

The slower rise in farm production expenses reflects lower prices this year for fertilizer, chemicals, and feeder livestock. Prices of feed and seed were also steady to lower. Prices paid for production items, interest, taxes, and wage rates in mid-October averaged about 4½ percent above a year earlier. With this showing in input prices, farm production expenses this year may total around 5 percent above 1975. The slower rise in input costs is expected to extend into 1977. Fertilizer and chemical supplies are large enough to suggest steady to slightly lower prices in the coming year. Outlays for purchased feed and livestock also may change little. However, with the cost increases indicated in 1977 for fuel, hired labor, interest, and taxes, farm production expenses will rise, perhaps at least as rapidly as this year.

*Net farm income*

The net income position of farmers this year is essentially unchanged from 1975. Some livestock operators and producers in drought areas did not fare as well. Realized net farm income this year is estimated around \$24 billion as compared with nearly \$23 billion in 1975. Total net farm income, including an allowance for inventory change, is still more tentative than realized net. Inventories for crops and livestock, other than cattle, will likely increase modestly. However, the downturn in cattle numbers may be offsetting. Prospective inventory developments tentatively suggest a small decline in total net income from 1975 (figure 5).

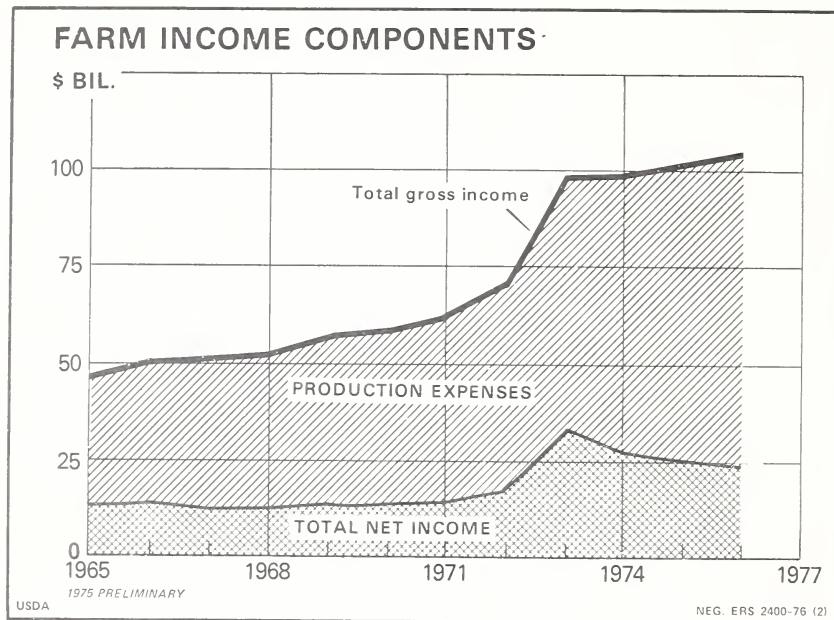


FIGURE 5

TABLE 6.—FARM INCOME, MARKETINGS AND PRICES, 1973 TO 1975, AND ESTIMATES FOR 1976

Item	1972/73		1973/74		1974/75		1975/76	
	October to September	<sup>1</sup> 1973	October to September	<sup>1</sup> 1974	October to September	<sup>1</sup> 1975	October to September	<sup>1</sup> 1976
Volume of marketings (1967=100).....	113	113	114	111	112	115	120	121
Livestock.....	104	105	105	104	105	106	111	112
Crops.....	125	126	127	121	123	128	132	133
Prices received (1967=100).....	165	179	191	192	187	186	189	187
Livestock.....	172	183	172	165	164	172	182	177
Crops.....	158	175	212	224	213	201	198	200
Cash receipts (billion dollars).....	78.2	87.1	92.7	92.6	90.3	89.6	94.5	95
Livestock.....	43.0	46.0	43.9	41.4	40.9	42.9	47.5	47
Crops.....	35.2	41.1	48.1	51.2	49.4	46.6	47.0	48
Nonmoney, other income and Government payments.....	8.6	8.4	7.8	7.6	8.4	8.6	9.0	9
Realized gross income (bil- lion dollars).....	86.8	95.5	100.5	100.2	98.7	98.2	103.5	104
Production expenses (billion dollars).....	60.2	65.6	71.1	72.9	75.3	75.5	79.0	80
Realized net income.....	26.6	29.9	29.4	27.8	23.4	22.7	24.5	24
Inventory change.....	2.2	3.4	.8	-1.3	.9	2.9	1.2	-----
Total net income.....	28.8	33.3	30.2	26.5	24.3	25.6	25.7	-----

<sup>1</sup> Calendar year.



Net farm income in 1977, suggested by prospective marketings and prices, is expected to hold close to the average of recent years. The expected modest gain in gross income and the slower rise in production expenses would suggest little change in net farm income again next year. But this is a highly tentative projection that will depend heavily on the outcome of 1977 crops. With average growing conditions next year and no big surprises in world markets, net farm income in a \$23 to \$25 billion range is a reasonable projection.

The relatively stable net income level of farmers in general in the past two calendar years is about double the net income of farmers in the late sixties.

Much of the gain in the dollar income flow to farmers, as is the case for other industries, was due directly to higher prices. Average crop prices are about double and prices of livestock products are 70 to 80 percent above levels in the late sixties.

Even so, farmers have made net gains in the past 5 or 6 years in real farm income, adjusted for price level change, and substantial gains in net income per farm. Per capita income of farm people from all sources also has improved relative to incomes of nonfarm people.

#### FOOD PRICES AND CONSUMPTION

Retail food prices—average prices we pay for purchases of food in grocery stores for use in the home—have held amazingly stable in the past year. Quarterly averages of the retail price index for food used at home ranged from 179 to 181 (1967=100) during the main October-September farm marketing year. This was a year of big supplies of food crops and expanding output of livestock products. Per capita food consumption estimated for calendar year 1976 may be up 2 to 3 percent from a year earlier, with most of the gain in consumption of beef and poultry.

This stability in retail prices for food used at home is expected to continue into the early months of next year. However, some firming in farm prices is likely by next spring if domestic demand increases as expected and output of livestock products tapers off and declines modestly later next year. Costs of processing and marketing food will continue to rise in 1977. But farm-to-retail margins are relatively wide and will likely narrow some if prices at the farm increase next year. Even with some narrowing in farm-to-retail price spreads, retail prices for food used at home probably would begin to increase next spring and for the year may average nearly 3 percent above 1976.

Prices paid for food used in restaurants and other "away from home" uses will increase about 7 percent this year and perhaps another 5 or 6 percent in 1977. Away from home eating accounts for more than a fifth of the overall weight in the retail food price index. Combining indications for retail prices for food used in the home and for away from home eating suggests an all food retail price index for next year averaging some 3 or 4 percent above the average for this year.





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**FOOD—SUPPLIES, DEMAND, AND CONSUMPTION**

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## THE OUTLOOK FOR FOOD SUPPLIES AND PRICES

(By James R. Donald, Deputy Outlook and Situation Officer, Economic Research Service, USDA)

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The current food situation is highlighted by: Large supplies due to fairly good crop harvests and heavy output of livestock and poultry products; relatively strong demand both here and abroad; and marketing costs that are rising about in line with general inflation in the U.S. economy. All this adds up to the relative stability we've seen in retail food prices this year. The 1977 outlook is for continued generous food supplies. Prices will start the year fairly stable but increase into spring if beef supplies tighten as expected.

With the increase in food supplies outpacing demand this year, retail food prices will average only about 3 percent above 1975. Rising marketing spreads, coupled with higher prices for imported foods and restaurant meals, are behind the moderate retail price rise. Larger supplies are also contributing to an increase in per capita food consumption in 1976. And, combined with the moderate rise in retail prices, consumer expenditures for food may increase about 6 or 7 percent from 1975.

### FOOD DEVELOPMENTS DURING 1976

#### *Food supplies*

Increased supplies of food commodities are available this year. A significant expansion in livestock and poultry supplies and larger January 1 inventories of crop-related foods are offsetting slightly smaller production of crop foods. For major field crops: Wheat production is near last year's record; the corn crop is record large; however, the soybean crop is down because of smaller plantings and drought-reduced yields.

Among other crop foods: Supplies of sugar and sweeteners are much larger this year; fresh and processed potatoes and sweet potatoes have been in tight supply, but the important fall potato crop is record large and should be adequate for domestic use and expanded exports; tonnage of processing vegetable crops will be the smallest since 1972, but carryover stocks will keep supplies large enough for domestic disappearance, particularly for canned vegetables; and the citrus crop is expected to be well above last year's record, while noncitrus tonnage is down moderately. Some imported foods, and a few fishery products, are in tighter supply.

Livestock and poultry product supplies are well above a year ago, reflecting the record 1975 feed crop and favorable feed prices in relation to livestock and poultry product prices. Rising pork output combined with large beef production pushed meat output to very high

levels this summer. For the year, output of animal products is likely to exceed 1975 by 5 to 6 percent, with more generous supplies of beef, pork, broilers, turkeys, and milk.

### *Food demand*

While softening a bit with the summer pause in economic activity, demand has been fairly strong for record food supplies. The turnaround in economic activity that began in the second half of 1975 has resulted in gains in employment and rising consumer incomes. Combined with larger supplies and relatively stable food prices, this has led to rising civilian consumption of food products.

Domestic demand for crops—which flow into both feed and food uses—has been rising in response to expanded livestock production. However, the gain in demand for animal feed is expected to slacken in coming months as cattle numbers decline and feeders alter plans in response to less favorable feed cost-product price relationships.

Export demand for U.S. farm commodities has been rising in recent years, and is expected to remain relatively strong through mid-1977. A high level of exports is indicated for the coming year by expanded domestic activity in several countries—notably in Europe, Canada, and Japan—and the need for relatively large imports by Europe because of reduced crop prospects. However, world food production prospects are improved this year, with indications of expanded production of both food grains and feed grains. This should lead to some easing in tight world food supplies, particularly wheat, and a slightly reduced level of total commodity imports from the United States.

### *Food prices*

The combination of the farm price of food and marketing costs determines the price of food to consumers. There are several ways to measure food prices or costs. USDA computes the retail cost as well as the farm value, and farm-retail price spread, for a market basket for farm foods, based on data from the Bureau of Labor Statistics (BLS). BLS includes a measure of retail food prices in its Consumer Price Index. In this index, food accounts for about one-fourth. The food index itself includes two components: Food consumed at home, or purchased in grocery stores, accounts for most of the total, with food consumed away from home accounting for 20 to 25 percent. The food-at-home component is weighted slightly more toward livestock products than crop foods.

With food supplies outpacing demand, farm food commodity prices have been easing since the summer of 1975 due to a decline in farm value, a measure of returns to farmers for food products. This fall, the *farm value* of the market basket of farm food commodities will be well below a year ago and, for the year, average nearly 4 percent below 1975. Livestock-related foods—particularly meat animals—have shown the greatest decline. Crop-related foods generally have been under less downward price pressure.

Although the farm value of the food market basket has declined over the past year, the *retail cost* of the basket of farm foods is averaging slightly higher in 1976. A rise of about 5 percent in the *farm-retail spread* is accounting for the small rise in the retail cost of domestically-

produced foods. While the spread is widening this year because of higher marketing costs, largely reflecting wage settlements and higher packaging and transportation costs, the expected increase is only about half the 1975 advance. Among major foods, price spreads have increased the most for those commodities showing the sharpest price declines at the farm, including beef, pork, and bread.

If consumers purchased only domestically produced farm foods from grocery stores, they would pay about  $1\frac{1}{4}$  percent more for food this year than a year ago. But consumers also buy imported foods, such as coffee and fishery products. Taking these purchases into account pushes up average retail food prices by slightly more than 1 percentage point—to an average increase of nearly  $2\frac{1}{2}$  percent for all food consumed at home.

Finally, consumers do not purchase their total food needs in grocery stores. That is, they eat away from home in places like restaurants and pay for the services of someone else to prepare and serve meals. And taking this into account tacks another percentage point onto this year's food price increase.

All told, taking into account farm-produced foods, imported foods, fishery products, and meals eaten away from home, the prices consumers pay for food will average around 3 percent more in 1976 than in 1975. Still, this is sharply below 1975's  $8\frac{1}{2}$  percent increase and the lowest annual rate of increase since 1971.

#### *Per capita consumption and consumer expenditures*

With record large food supplies and higher consumer incomes, U.S. per capita food consumption for all of 1976 is likely to be up a little over 2 percent from 1975, and nearly equal the record high of 1972. Consumption of crop foods, where 1976 supplies were supplemented by large carryovers from 1975 crops, may be up slightly over 1 percent, while animal product use may be about 3 percent higher. The combination of 2 percent larger consumption and 3 percent higher prices will mean a rise of 6 or 7 percent in *consumer expenditures* for food. But food spending is not likely to match the rise in disposable personal income; so the percentage of income spent for food is likely to average slightly less than the 17.1 percent in 1975.

#### FOOD OUTLOOK FOR 1977

Looking ahead into 1977, large food supplies will continue to slow the rise in food prices during the first half. At the same time, demand expansion and rising marketing costs will put upward pressure on food prices. On balance, a retail food price increase of 2 to 4 percent is in prospect for the first half of 1977.

However, the seasonal pattern of food price movements may shift sharply as 1977 unfolds, mostly due to a reduction in beef supplies by next spring. During the first quarter of 1977, a price increase of 2 or 3 percent is expected over a year earlier, mainly reflecting increasing prices for coffee, some produce items and higher marketing costs and restaurant meals. But by next spring, food price increases may be a little sharper if the economy is strong and beef output declines as expected. Prospective higher farm prices, coupled with marketing costs

5 to 6 percent above the spring of 1976, may lead to food price increases averaging 3 or 4 percent above last spring.

Crop supplies and livestock product output during the first half of 1977 generally depend on plans and actions already taken by producers. The second half of next year is less certain. On the crop side, farm prices this winter and next spring, along with growing and harvesting conditions, will greatly influence crop supplies during the summer and fall of 1977. Relatively favorable crop prices are indicated if demand continues strong as expected and this should lead to large 1977 plantings, particularly for soybeans.

Prospective 1977 crop developments also will influence production plans for livestock and poultry. Output of animal products should remain large in the second half of 1977, especially if supplies and prices of feed are favorable to livestock and poultry producers.

Cattle are a key to the outlook. If feed cattle prices improve this winter and next spring as expected, cattlemen will likely increase placements on feed and reduce the number of animals going to slaughter directly off grass during the first half. This would point to a little larger beef production in the second half. Coupled with continued relatively large pork, poultry, and milk output, animal product supplies would continue at a high level, although below the second half of this year.

On balance, 1977 looks like a year of fairly generous food supplies for consumers, with another year of only moderately rising retail food prices.

#### WHAT PRICE FOOD: SOURCE AND CAUSES OF PRICE VARIATIONS

Now, let's examine the food situation in a long-run perspective. Today's interest in food prices is in stark contrast to just 3 years ago. Let me quote the first line of the food outlook talk presented at this conference in December 1973: "Food prices in 1973 have risen at the most rapid rate in over a quarter century." (Summers, 1973.)

Prices are still a topic for discussion, but the overall level of retail food prices has been fairly stable in 1976 and concern now more often centers around particular foods rather than the overall level of food prices. Developments over the past few years have stimulated considerable interest in a better understanding of the forces and factors influencing the Nation's food system. Insight can be gained by reviewing causes of the sharp rise in food prices during 1973 and 1974 and the slowdowns in 1975 and 1976.

#### WORLD FOOD TIES GROWING

The understanding of how much food, which types of food, and at what price food is available to consumers involves a complex set of developments that came into focus in the 1970's. Of particular note is the interdependence of the food production and marketing system in the United States and the food systems of other countries. A brief overview of supply-demand developments during the 1970's will help us understand these interrelationships and provide a basis for examining implications for the future.



The most striking development has occurred on the demand side. Since 1972, the value of U.S. agricultural exports has jumped from less than \$10 billion to about \$22 billion. U.S. exports have grown in importance until they now account for about a fourth of the total market for crop commodities.

The growth in world demand was largely brought on by increasing incomes and rising population, coupled with the decision by the U.S.S.R. to import food. This introduced more uncertainty into domestic agricultural markets and caused sharp variations in food prices to both farmers and consumers. U.S. exports are sensitive to both supply and demand conditions in other countries. These conditions can change rapidly if weather reduces crops or if economic activity stimulates demand, as well as with economic-trade policies, such as international currency alignments.

The sharp rise in U.S. retail food prices in 1973 is explained by a combination of these conditions. Simply put: Weather-reduced world crops in the face of expanding world economic activity and strong demand caused a jump in food prices. Although the farm value represented only about 40 percent of retail cost, higher commodity prices accounted for three-fourths of the 14½ percent rise in retail food prices in 1973.

In 1974, retail food prices again increased by 14½ percent, but only about a fourth of the increase was due to higher farm commodity prices. Farm price rises were moderated by an easing of the tight world food supply-demand relationship. But marketing spreads rose sharply, reflecting rising costs and delayed passthrough after economic controls were removed. The sharp rise in marketing costs also reflected economic interdependence of world economies as the embargo tightened oil supplies. This contributed to higher costs for the energy-dependent U.S. food system, from farm to retail.

Since 1974, farm food prices have continued an easing trend as world food supplies generally caught up with demand. In 1975, about three-fourths of the advance in retail prices was due to rising marketing costs. In 1976, marketing costs are accounting for all the moderate increase in retail food prices, even though there has been a slowing in the marketing cost rise. The farm value of food will be below 1975.

Thus, it is evident that both the level of and changes in retail food prices vary with food supply-demand conditions here and abroad, as well as with marketing costs in this country. For individual foods, the volatility in prices can vary greatly, depending on the proportion that farm value is of retail cost. Livestock and poultry products are generally more closely tied to the volatility of farm prices than are crop foods since the farm value constitutes a higher proportion of their retail cost. Moreover, inventories of major crops can cushion the impact of supply-demand changes. For example, the farm value for beef and eggs accounts for over half of the retail cost, while for bread and corn flakes the farm value is less than a fourth. Fresh fruit and potatoes tend to fall between these extremes. While fresh produce undergoes little processing, marketing costs are large because of transportation and retailing costs (Harp, 1976).

## SUPPLY-DEMAND FACTORS AFFECTING RETAIL FOOD PRICES

*Sources of food supply*

The U.S. food supply depends heavily on the output of domestic farms and ranches. In the 1970's, the percentage of the total supply of food from domestic production has fluctuated around 88 percent. The remaining 12 percent comes from imports.

The supply of livestock food commodities is almost entirely from domestic sources, 96 percent, while about 70 percent of crop foods are produced in this country. Prices for imported crop foods can be quite variable, such as for coffee, reflecting supply and demand conditions both here and abroad.

*Supply factors.*—U.S. farm production of food commodities is heavily dependent on the relationship between production costs and product prices. Production costs are closely tied to the quantity and price of inputs farmers use. Farmers are becoming increasingly dependent on outside sources to furnish production inputs.

Today, farmers purchase well over half their inputs from outside sources, and these purchases have been rising. Thus, the farm sector is becoming increasingly linked to and dependent upon input supply industries—and the availability and price of inputs have a critical impact on farm food production. At the same time, costs have been rising in other sectors of the economy in response to rising energy costs and inflationary pressures. This has resulted in cost pressures throughout all the sectors of the food system in the 1970's.

Cost pressures on prices can be moderated by productivity gains throughout the food system, either through more output from a given quantity of inputs or from the same output from a reduced quantity of inputs. But productivity gains in the food system appear to have slowed in the 1970's.

For example, one study found that food system labor productivity slowed from over a 3-percent annual growth rate in the 1960's to less than 1 percent in the 1970's (Durost and Kirkley, 1976). Among the sectors of the food system, the farming sector has been the leader in productivity gains. But in the 1970's, farm labor productivity has slowed and crop production per acre has been cut below longer term trends.

Several developments have tended to reduce yield levels: Less productive acres have been brought back into cultivation; high input prices caused farmers to cut back on the quantity of inputs used, especially in years of declining farm prices; and weather and disease have taken a severe toll on the farm sector several years, with the corn blight of 1970 and weather problems in 1974 and 1976. On the livestock side, the banning of DES (diethylstilbestrol) tended to moderate efficiency gains in cattle and calf feeding, although substitutes for DES should help recapture losses.

*Sources of demand for food*

There are three primary sources of demand for farm commodities: Domestic food use; animal feed; and exports. As a percentage of total use, domestic food use and animal feed have trended downward in the 1970's. Exports of all farm food products now account for nearly 18 percent of the total compared with about 12 percent in 1971. But

exports of crop foods account for 27 percent of crop utilization compared with 18 percent in 1971. Animal feed accounts for about 30 percent of total utilization, but year-to-year variations usually are not as sharp as for exports.

*Demand factors.*—The level and composition of *domestic food use* or per capita food consumption reflect a combination of economic, sociological, and psychological factors. Historically, the level of per capita consumption in terms of total pounds has shown a gradual downward trend, although it has remained around 1,450 pounds (retail weight) in the 1970's. But of far more interest and significance is the changing composition of foods consumed, where sociological and psychological factors have increased in importance (LeBovit, 1976 and Manchester, 1976). Consumption has shifted away from lower valued foods toward those of higher value, reflecting improved living standards and rising per capita incomes. Both livestock and crop-related foods have trended upward at about the same rate; but within the livestock group, meat and poultry have been a big gainer while eggs and dairy products have trended downward. Among crop foods, vegetable oils and processed fruits and vegetables have shown major increases in use.

On balance, the combination of domestic demand factors affecting the level of per capita food consumption, as well as consumption of individual foods, tends to impact gradually over time. Sharp year-to-year changes are more likely to be associated with changes in food supplies. Also, participation in domestic food programs works in the direction of more stability in food consumption. Food stamps, in particular, may provide a floor for food expenditures above levels to which they otherwise would fall rather than generating a greatly expanded demand for food (Bunting and Reese, 1975). People participating in the food stamp program reached a peak of 19 million in 1975.

Animal feed use is tied in with per capita consumption of foods. As consumers have upgraded their diets, they have consumed more protein from meat and poultry, directly increasing the demand for feed crops.

The overall level of animal feed use shows more stability than does the use of individual feeds. However, the level of feed use can show considerable year-to-year change because of changes in feed prices in relation to animal product prices. For example, a sharp increase in cattle slaughter because of a squeeze on feeding profitability can cut back on the number of animals being fed and reduce feed requirements.

In the 1970's, supplies and prices of feed crop have shown considerable variation. This has meant increasing fluctuation in livestock product supplies and retail prices. But, by no means, is all the variability at the farm or the consumer level due to the increasing instability of feed supplies and costs. Cycles in beef and pork production, for example, would be likely even if adequate low-cost feed supplies were available to producers, reflecting farm level adjustments to changes in consumer demand.

Among the demand sources for food, exports are the most volatile. U.S. exports vary with both supply and demand factors abroad, as well as with changes in government policies in other countries. For

example, the decision of the U.S.S.R. to increase imports to meet food production shortfalls greatly tightened world food supply-demand balances and contributed to the sharp increase in U.S. farm and food prices.

As in the United States, the composition of food consumption abroad has been changing with the increase in the level of consumer income. Crop-related foods generally constitute a greater proportion of total food consumption than in the United States. But the consumption of meat and poultry as a source of protein is increasing, although it is still small in a number of countries.

Food production in many countries shows greater year-to-year variability than in the United States due to weather and climatic factors. Crops in the U.S.S.R., for example, are more vulnerable to weather since they are grown in more northern latitudes.

Thus, weather variability, growing demand for food, and closer world economic ties have led to a sharp increase in the level of U.S. food commodity exports. While these developments set the stage for sharp year-to-year changes in U.S. exports, trade arrangements with several countries help to stabilize U.S. food supplies and prices.

#### THE FUTURE

Since 1973 most of the increase in retail food prices can be attributed to increased marketing costs, including transportation, packaging, and labor costs. Still, with reduced prices at the farm level for food in 1976, retail food prices are advancing at about half the rate of increase as the CPI and thus slowing the increase in the overall cost of living.

As we move into the future, both the level of food prices and year-to-year changes will depend heavily on factors related to general price inflation, food production both here and abroad, productivity throughout the sectors of the food system, food demand, and Government policy.

The impact of these factors on retail food prices will be reflected through marketing costs and farm prices. Marketing costs have become increasingly tied to inflation, or the overall cost of living, and this is likely to remain the case in the future. If upward cost pressures continue as expected in the economy, marketing costs will rise. For example, about one-half of total food marketing costs are accounted for by labor and, currently, wage contracts of at least one-sixth of food industry employees include cost-of-living adjustment clauses that are tied to the CPI for all items (Barr and Blanciforti, 1976). And wages of nonunion and management employees usually follow changes in collective bargaining agreements. Further, transportation and packaging costs, the next two largest components of food marketing charges, will be responsive to rising energy requirements and generally higher operating costs.

On the production side, the world has the potential to produce adequate food supplies. Questions center around the level of farm prices needed by producers to cover the cost of producing food and the impact of weather, disease, and pests on the food supply. In the United States, farmers have the capability to produce sufficient food for current domestic and export needs but uncertainty centers around pro-



duction costs and product prices needed by U.S. producers to expand production to meet growing food markets.

Developments in the 1970's would suggest the possibility of a continued high level of exports, and considerable year-to-year variability because of changing conditions abroad.

The total quantity of food that U.S. farms will supply, and at what prices, is related to production costs and the productivity of resources used by farmers. Upward cost pressures are likely to continue in the farm sector, especially for inputs related to energy, labor, and environmental quality. Among other inputs, a key question centers around the cost of feed. For example, feed cost rises would increase the cost of finished cattle and could result in the cattle industry becoming more dependent on roughages and thus tend to reduce productivity gains in feeding (Allen, 1976).

For both crops and livestock, there is further potential for substituting capital for other inputs, such as labor, and continuing output gains from adoption of available technology (Farrell, 1976). However, total farm productivity has slowed in recent years. Annual gains of 1 to 1½ percent to 1985 are projected by the Economic Research Service and realization of these gains assumes that yields will be subject to "the average weather conditions that prevailed during 1950-72" (Smith, 1976).

The projected rate of productivity gain likely would not fully offset the impact on production of rising costs, since the latter costs may rise more in line with prices for chemicals, fertilizers, and energy. And, even if productivity gains hold per unit food production costs and farm prices constant, expanding demand would likely exert upward pressure farm food prices in some years.

The worldwide demand for food products likely will continue to expand with rising world population and increasing per capita incomes. It is generally agreed that the United States can remain a competitive producer of food commodities in relation to other countries. This implies that the United States can maintain a significant share of world food trade, with a continued strong export demand for U.S. food products. However, world trade expansion could slow as countries abroad strive for greater self-sufficiency in food production. In this case, the rate of U.S. export growth may not match recent years.

U.S. per capita food consumption may continue relatively stable to possibly slightly increasing with use of processed foods and fresh meats continuing to show the fastest gain. This would suggest a little, if any, change in the farm value as a percent of retail cost due to these shifts since farmers' small share of processed foods likely would be offset by their large share for meat.

On balance, the level of retail food prices in the future will reflect the impact of inflation in the economy, marketing and production costs, productivity, and the level and composition of food demand.

Retail food prices—and especially year-to-year variations in prices—also could be affected by Government policy. Governments can influence both farm and retail food prices through farm programs or retail price stabilization programs. Governments generally use indirect methods to moderate the impact of changes in food supplies and demand on farm retail food prices, such as the recent U.S. grain

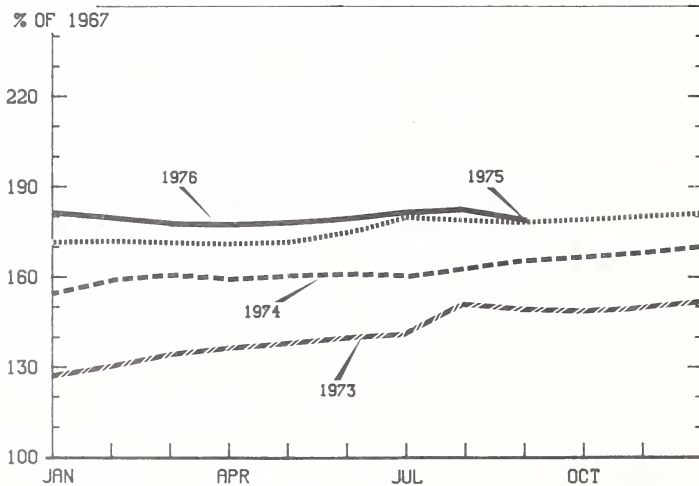
trade arrangements with several countries. Reserve food stocks represent another indirect method, either through stocks owned and held by the Government, or through privately owned and held stocks with assistance from the Government; and actions may be related to international trade, including export embargoes, taxes and subsidies, adjusting tariffs and quotas on imports, trade arrangements and commodity agreements.

In looking ahead, most indications point to a desire of countries to assure their producers reasonable incomes and consumers adequate food supplies, whether through domestic production or trade. In either case, this points to closer economic ties among countries and perhaps relaxation of trade barriers, particularly to meet production deficits.

In summary, both producers and consumers became more aware of their food system in the 1970's. Their voices—whether from farmers in the United States who complained of grain embargoes or consumers in Poland who pressured the government to rescind sharp food price increases—were raised and heard around the world.

Consumer voices were probably louder than producers', particularly about the sharp rises in food prices. This might suggest pressures for more stability in food supplies and prices in the years ahead, but prospects appear far from certain about the level of food prices—the 3 percent yearly increase in food prices during the 1960's looks much less likely for the 1980's.

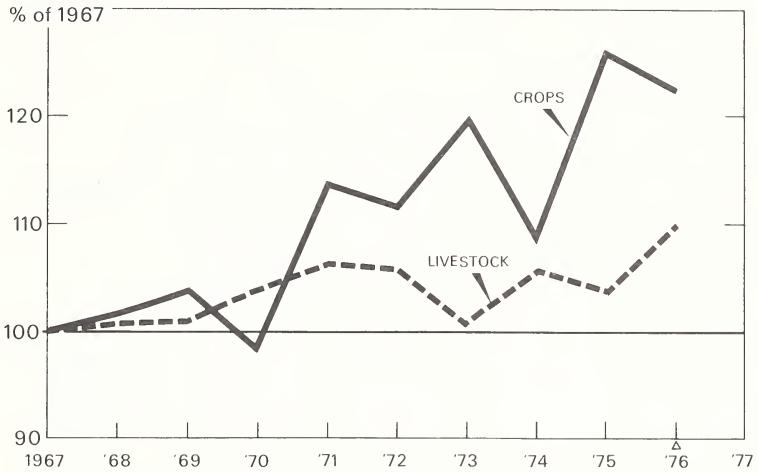
## RETAIL FOOD PRICES\*



\*FOOD AT HOME. SOURCE: BUREAU OF LABOR STATISTICS.



## PRODUCTION OF FOOD COMMODITIES



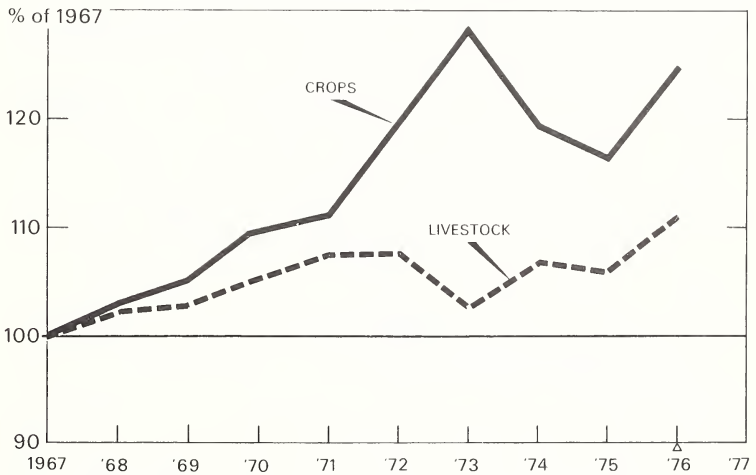
Based on supply utilization index data, which uses 1957-1959 farm price weights.

△ Preliminary.

USDA/ERS

November, 1976

## UTILIZATION OF FOOD COMMODITIES



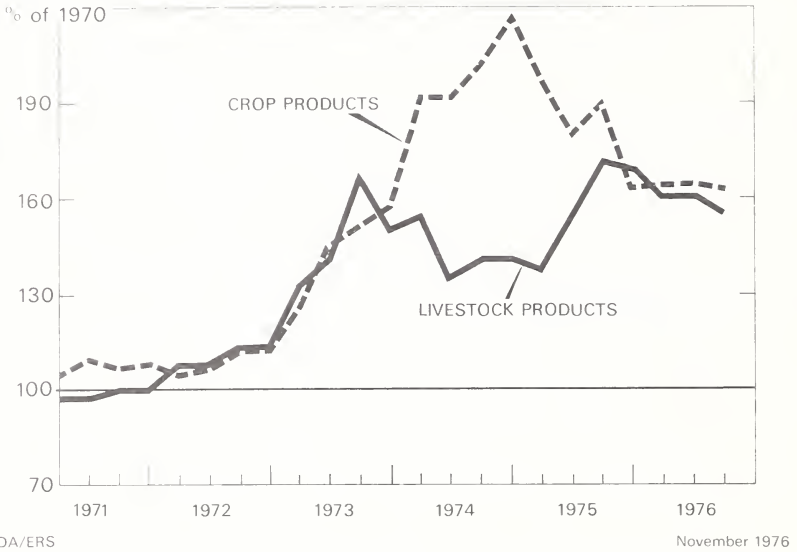
Based on supply utilization index data, which uses 1957-1959 farm price weights.

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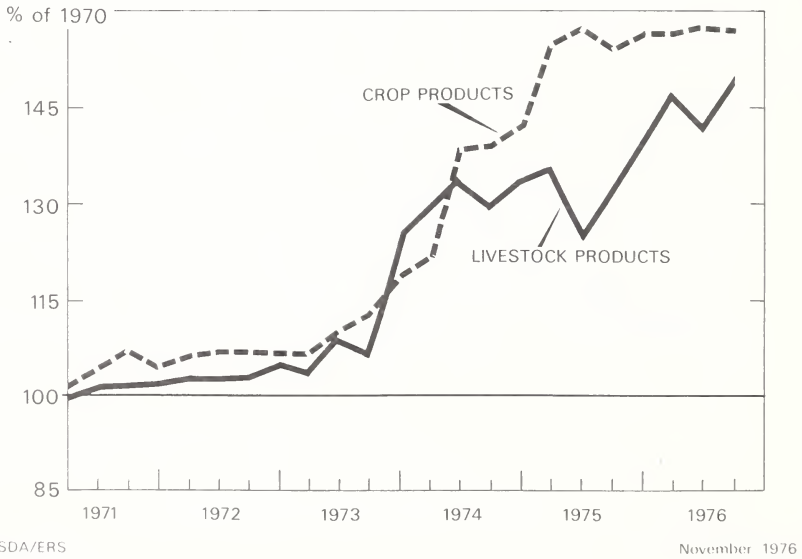
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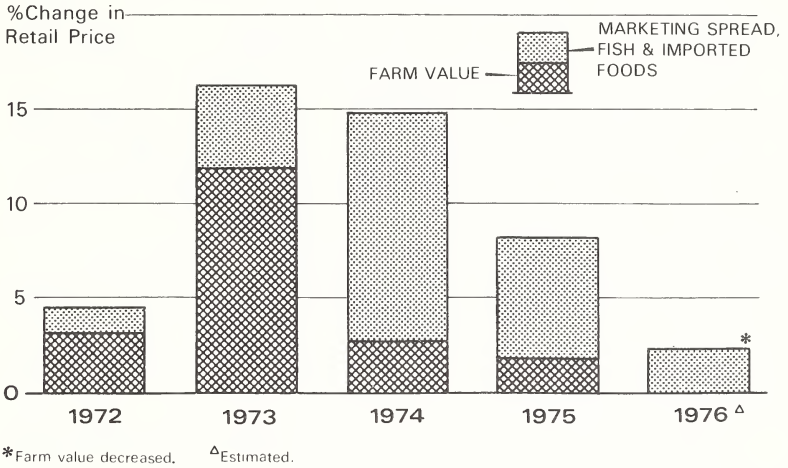
## FARM VALUE FOR MARKET BASKET FOODS



## FARM-RETAIL SPREAD FOR MARKET BASKET FOODS



## COMPONENTS OF INCREASES IN FOOD STORE PRICES



USDA/ERS

November 1976

## FARMER'S SHARE OF RETAIL PRICE

### UNDER 25 PERCENT

CANNED CORN  
CANNED TOMATOES  
CANNED SPAGHETTI  
CORN FLAKES  
SANDWICH COOKIES  
BREAD  
FRENCH FRIED POTATOES

### 25 TO 50 PERCENT

FROZEN ORANGE JUICE  
PEANUT BUTTER  
FRESH APPLES  
LETTUCE  
ICE CREAM  
FLOUR  
POTATOES

### OVER 50 PERCENT

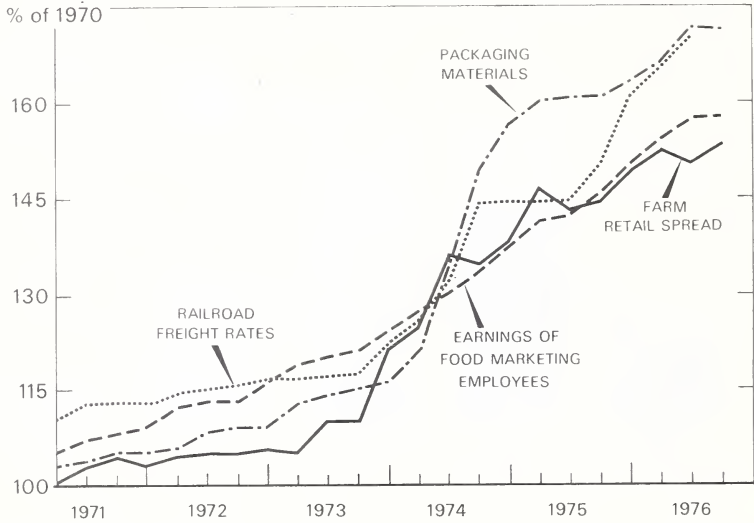
BEEF  
PORK  
BUTTER  
EGGS  
MILK  
FRYING CHICKENS  
TURKEY

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THIRD QUARTER, 1976

November, 1976

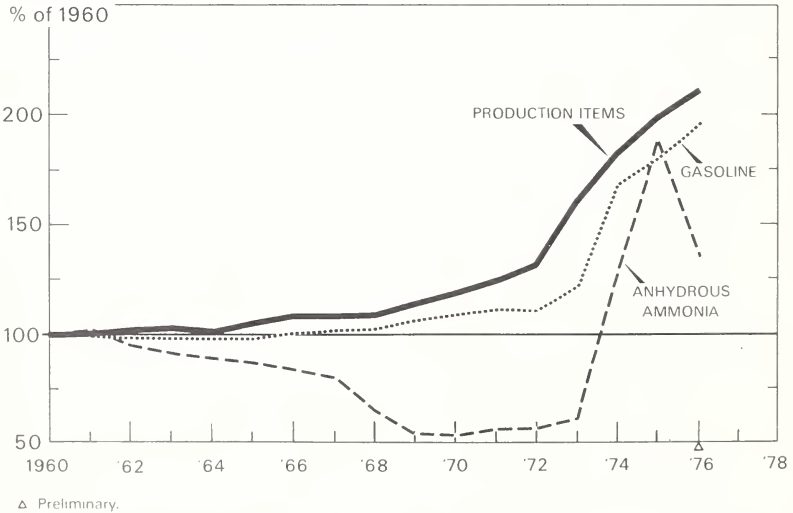
## FARM RETAIL SPREAD AND MARKETING COSTS



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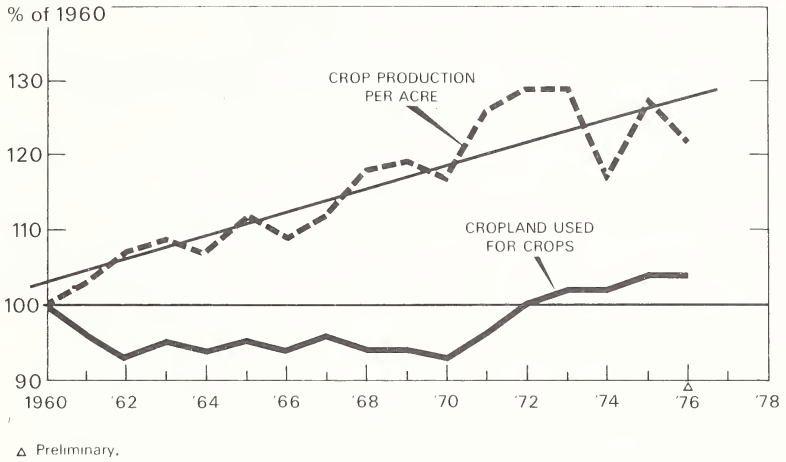
## PRICES FOR PRODUCTION ITEMS, GASOLINE, AND ANHYDROUS AMMONIA



USDA/ERS

November, 1976

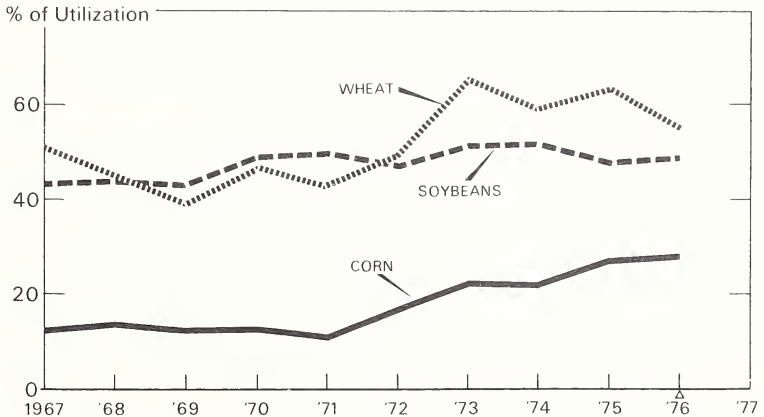
## CROP PRODUCTION PER ACRE AND CROPLAND USED FOR CROPS



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November, 1976

## EXPORTS AS A SHARE OF UTILIZATION FOR SELECTED CROPS



Based on supply-utilization index data, which uses 1957-1959 farm prices weights.

USDA/ERS

November, 1976

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## OUTLOOK FOR USDA DOMESTIC FOOD ASSISTANCE PROGRAMS

(By Stephen J. Hiemstra, Director, Economic Analysis and Program Evaluation Staff, Food and Nutrition Service, USDA)

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### FOOD STAMP PROGRAM

The domestic food assistance programs of the Department are operated by the Food and Nutrition Service. They include the food stamp program, the child nutrition programs, the WIC program, and a few direct distribution programs.

Participation in the food stamp program reached a peak of 19.3 million in April a year ago. It has been trending generally downward ever since. Our most recent figure—based on preliminary data for September—shows a drop of 2 million from the peak, to 17.3 million.

Part of that decline is seasonal since April is typically high and September typically low. But more than 1 million of the decline has been due to the improving economic situation and drop in unemployment. We have been getting about a one-half million change in participation for every 1 percent change in the rate of unemployment.

Now that no large changes are expected in the economic situation, our expectations are for near stability in food stamp program participation. Participation averaged 18 million in fiscal year 1976. Since we are already below this figure, we are looking for some decline in the average for fiscal year 1977.

Looking farther ahead, we are expecting participation to remain on a new plateau near current levels rather than decline with further growth in the economy. Continued outreach efforts and increasing benefit levels are gradually bringing higher proportions of those eligible into the program. This trend assumes no change in the program rules or structure. However, legislative authority is needed to continue the food stamp program beyond fiscal year 1977. The level of appropriations and enactment of legislation to reform the program could significantly affect participation in the program.

Program costs totaled \$5.7 billion in fiscal year 1976; \$5.3 billion represented benefits to recipients and \$0.4 billion covered the cost of printing and distributing the stamps plus Federal costs of administration (including one-half of State and local administrative costs). Costs in 1977 are expected to be close to those of last year.

Food stamp allotments have been at the level of \$166 for a household of 4 since January 1976 (48 States and the District of Columbia). No increase was warranted in July and no increase will be made in January 1977 because prices for food at home, as reflected in the calculations of the thrifty food plan, have remained essentially stable.

Economic Research Service projections of relatively stable prices through next February mean little or no change in benefits through fiscal year 1977. Bonus per person averaged \$24.50 in the latest quarter.

#### CHILD NUTRITION PROGRAM

There are some uncertainties in future trends in the national school lunch program and other child nutrition programs because of significant legislative changes enacted about a year ago. The net result of these changes likely will be expansion in both participation and costs of the program.

Extension of the program to include residential child care institutions and mandating the offer of reduced price lunches are among the changes that will affect participation in the lunch program this school year. Categorical availability of the school breakfast program and the summer feeding program are other changes. In addition, liberalizing benefits and expanding the child care feeding program will greatly increase potential costs of preschool food programs.

Last school year, the national school lunch program reached an average of 25.6 million participants over the months of typical operations. That was an increase of 0.5 million from the previous year. It represented 58 percent of the enrollment in program schools. About 94 percent of the public schools and about three-fifths of the private schools have programs. Forty-two percent of the lunches were served free or at reduced price to eligible students. That's an average of 10 million students. All of the half-million increase from the previous year was in this category. The number of youngsters paying for their lunches has been declining gradually over the years.

The breakfast program continues to grow as more schools adopt the program. An average of 2.2 million students participated last year, up from 1.8 million the previous year.

The fiscal year 1977 budget for all of the child nutrition programs, including the special milk program, is \$2.8 billion.

#### SPECIAL SUPPLEMENTAL FOOD PROGRAM FOR WOMEN, INFANTS AND CHILDREN (WIC)

Our latest figures show about 600,000 participants in the WIC program. About 100,000 of these are pregnant or nursing women and the rest are infants and children through 5 years of age.

This program has been growing steadily as it expands into new areas of the country, in line with a court order to spend all of the money available for the program. The appropriation of \$250 million for fiscal year 1977 will be increased by \$50 million because of the availability of unspent carryover funds. Therefore, a total program level of \$300 million is expected for 1977.

#### ALL PROGRAMS

In total, domestic food assistance programs cost the Federal Government about \$8.5 billion in fiscal year 1976. Some increased costs in 1977 are expected for the child nutrition and the WIC programs, due both to program expansion and escalators on Federal inputs that

are tied to food price changes. These increases, combined with near stability in costs expected for food stamps, are expected to increase total Federal costs for these programs. But the aggregate increase is likely to be small.

The \$8.5 billion Federal input into the food programs accounted for 4.4 percent of the \$194 billion total U.S. food expenditures in fiscal year 1976 (including Puerto Rico). The Federal input accounted for 61 percent of the total value of stamps issued (with the balance paid by recipients as a purchase requirement) and 45 percent of the total value of food served under the national school lunch program. The total value of food purchased or served under these programs approached \$14 billion. That amounts to 7 percent of the aggregate of \$194 billion spent for food in this country. Little change is expected in these percentages in fiscal year 1977.

We have available for distribution at the conference, our preliminary annual statistical review for fiscal year 1976 that gives the specific data related to each of our programs for the year.

## CURRENT AND EMERGING ISSUES IN FOOD MARKETING AND DISTRIBUTION

(By S. Kent Christensen, Vice President and Agricultural Counsel, National Association of Food Chains)

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I am pleased to have been asked to appear on this panel to discuss some of the current and emerging issues in food marketing and distribution—particularly in the retail sector.

As many of you may be aware, with the exception of selected individual firms, the retail sector of the food industry has not been very healthy over the last decade as indicated by various profit measures. Starting in about 1965, at which time profits were around 1.41 cents per dollar of sales, and 12.55 cents per dollar of net worth, profits have trended downward almost continuously to a low of 0.49 cents per dollar of sales and 5.63 percent return on net worth in 1972-73. There was some slight recovery in 1974-75, but again this year many firms are having serious profit problems.

I mention these figures not to plead "poor mouth", but rather because they are symptomatic of some basic changes facing the retail sector which in turn suggest the kinds of economic pressures that will mold the nature of this business for several years ahead.

One basic change has been the very dramatic reduction in the birth rate—down from an average of about 4 children per household in the late 1960's and early 1970 to less than two children per household this year. Thus, the expansion rate in food sales enjoyed year after year since World War II due to population growth has been cut in half. Second, at about the same time, the transfer of fast moving nonfood sales items from drug and department stores to food stores has slowed materially, thus curtailing another facet of expansion. Last, a lessening of consumer demand due to curtailed real income has had an adverse effect on sales, as consumers have actually reduced purchases and/or shifted to lower cost products.

Thus in a broad general sense, the postwar supermarket growth industry, now comes face to face with a rather static expansion curve. Individual firms choosing to follow a growth policy are going to have to do so to a substantial degree by taking sales away from other retail food firms in contrast with the past several years where growth was possible to all concerned.

As the name of the game is volume, in keeping down unit costs in the supermarket industry, no firm is going to give up sales without a severe struggle. Thus it becomes rather apparent that the firms in an already intensely competitive industry will face an even greater intensive struggle for survival.

At the same time sales growth has been leveling off, unit cost inputs have been rising rapidly—thus putting pressure on profits from another angle.

With the sales growth-route limited as a potential source of relief—at the same time cost pressures intensify—either one of two results or both are evident: (1) chain store margins must increase on a dollar and cents basis, and/or productivity improvements must be achieved. I suspect we shall see some of each, but I want to talk specifically about productivity changes.

As many of you are aware—improvements in productivity at the retail level have been minimal for several years. The change to self-service was the last major breakthrough.

There are, however, many potential cost savings to be achieved if various institutional barriers can be eliminated or minimized. Such barriers include many resulting from Government regulation; many are tied to restrictive labor practices; while some are imposed by consumer pressures. We have made very little progress in shortcutting these barriers—by *we* I include we the food chains, we the Government legislators and executive branch employees and we the consumers.

I have given this dilemma much thought over the last couple years and seriously have concluded that much of the problem lies in the area of misguided priorities by those concerned about rising food costs. By this I refer to the constant concern about profit levels as a factor affecting farmers' and consumers' prices.

I would not attempt to dissuade anyone from continuing their careful review of industry profits. But, I would suggest that this myopic view keeps those who are sincerely seeking relief from food price increases from looking at the only real potential for relief—i.e. improved productivity. Consumer leaders, and legislative and executive branch leaders who continue whipping the profit horse, are in fact doing a gross disservice to their constituents because they are concentrating their attention on a "dry hole" and in doing so missing a potential opportunity for helping to bring about positive results.

Food chains retain roughly 22 cents of each dollar spent by consumers. About 1 cent of this goes for profit—while 21 cents is paid out in costs for labor, rent, packaging, promotions, etc. About 68 percent of the 22 cents goes for labor—including fringe benefits.

Unfortunately the current socio-political-economic environment makes it near impossible for the food distribution sector on its own to make any real headway in increasing productivity. About the only force which can bring about productivity reform is intelligent consumer action.

In my remaining time I would like to outline very briefly some specific areas of potential reform.

#### BACKHAUL

Backhaul remains a problem as there remains a considerable degree of uncertainty under what conditions a manufacturer may offer a discount to retailers desiring to pick up merchandise on a backhaul program without being charged with violation of the Robinson-Putman Act.



## UPC AND ELECTRONIC SCANNING

The installation of electronic front-end scanning systems continues at a slow pace. The latest count is about 100 individual stores across the Nation. The main deterrents to faster adoption are: (1) the heavy initial investment in a capital-short industry; and (2) the controversy over the price-marking of individual packages. Hopefully a shelf price-marking system satisfactory to consumers can be developed which will make acceptable elimination of price-marking individual packaging. Roughly 25-30 percent of the cost saving potential of this innovation is in not having to price-mark. Because of the tremendous potential saving—both direct and indirect—it is hoped this program will not be diluted by premature legislation.

## CENTRAL BREAKING OF BEEF CARCASSES AND RETAIL CUTTING AND PACKAGING OF MEAT

Much of the industry (perhaps 40 percent) has shifted to programs involving the breaking of beef carcasses at a central location and the shipping of vacuum packaged primal cuts to stores for retail cutting and packaging. The breaking is done by both packagers and retail owned central meat plants. The national union headquarters has now generally accepted this innovation, but several locals are still holding out after about 8 years. It would appear firms in the industry will continue moving into this program.

Of even greater interest is the central cutting and packaging of retail cuts. Such a program has been around for several years on a semi-experimental basis, but at least two important firms have recently gone into this program in a major way. There yet remains many problems to be overcome but the potential savings suggest ways will be found to do so.

The perfection of this innovation, no doubt, could be speeded up materially were the industry "free" to clearly experiment.

In summary, I would say that there are no doubt many, many innovations and practices (both technological and management) which would surface if the social climate were right. I sincerely believe we are closer to a productivity reform climate than ever before. But only strong consumer support—marshalled by consumer leaders can make the reform fully fruitful vs. a temporary abortive program.



## FOOD MARKETING AND DISTRIBUTION: COSTS AND RELATED ISSUES

(By Patrick J. Luby, Vice President and Corporate Economist,  
Oscar Mayer & Co.)

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There are many issues with important cost implications in the livestock-meat industry. Some are issues associated with the rapid inflation of the past decade and probably are quite similar to issues in other food industries. Other issues are unique and peculiar to the meat industry alone.

The marketing and distribution of meat has much in common with other foods and the rapidly rising costs of the past decade have impacted upon its management problems similar to those of other food industries. The normal response is to try to perform the functions more efficiently—to use the resources more effectively. In any competitive industry, such as the meat industry, the pursuit of efficiency has always been necessary for survival. The training and imagination of managers, engineers, scientists and technicians are always focused on these goals. Thus, significant breakthroughs on costs are rare. Most gains are usually modest in nature and are the results of daily doing a few things better than they were performed yesterday.

For purposes of quick review, in the meat packing and processing industry about 70 to 80 percent of the total costs are made up by the purchases of animals and meat. For packers of fresh meats, the figure is nearer 80 percent; for those firms who perform more processing, it is nearer 70 percent. If one does not include the cost of livestock and meat, about half of our industry's costs are composed of labor costs, about 15 percent made up of containers and supplies and the other 35 percent include energy, interest, depreciation, rents, local taxes, and other miscellaneous items. For many years, income before taxes has been near 2 percent of sales and after taxes about 1 percent of sales.

Under very favorable consumer demand, weather, and feed supply conditions, the livestock industry expanded rapidly during the 1950's and 1960's. Commercial meat production rose 80 percent from 1951 to 1971. This expansion helped reduce costs of processing and marketing per unit by permitting more efficient utilization of human and capital resources. However, some adverse weather and other conditions since 1970 forced commercial meat production down 3 percent from 1971 to 1975. If the cattle production cycle had not been in an expansion phase, the reduction would have been greater. In fact, commercial pork production declined more than 30 percent from its 12-month high in 1970-71 to its low in 1975-76. These kinds of rapid contractions usually force up costs per unit, whether the institution be public or private.

The fact that the meat industry's principal input is livestock and that its production is subject to considerable variability because of weather and cyclical production phases also presents a problem. The packing and processing industry must provide expensive capital to handle peak production periods.

For hogs, this has meant slaughtering 1,923,000 hogs during a week in December, 1970 and 1,024,000 hogs during a week in July, 1976. Neither of these weeks contained a holiday. This kind of variability creates considerable inefficiencies in the use of resources, a considerable part of which is fixed. Obviously, plant, equipment, transportation, refrigeration, and many other resources are of a fixed nature for the intermediate to long run. Staffs of trained and skilled managers, salespeople, buyers, technicians, scientists and many others cannot easily be abandoned and replaced every few years. Managers are very reluctant to abandon skilled and unskilled labor. There are real inefficiencies connected with hiring and training new people. There are real costs in terms of guaranteed weekly wages and unemployment compensation to shortrun changes in output and sales. There are tremendous costs in separation pay to permanently closing a production facility.

The rapidly rising costs of doing business force our and all industries to look increasingly hard at the use of all resources. To the extent that some resources are rising more rapidly than others, managers, engineers, scientists, technicians—everyone—are looking hard at new ways of doing things, new substitutions of one resource for another, new ways of handling materials, packaging, transporting, and selling. During the last 3 years, the cost of energy has ballooned more rapidly than most other resources. The industry is looking closely at its powerplants and fuels, at new energy saving techniques. Management of the operation of any heating and refrigeration unit is being sharpened. New and improved technology in air atomizers, heat exchangers and other methods and equipment are being studied. Better housekeeping measures and the installation of more fluorescent lighting can save some electrical costs. However, there are not likely to be any great panaceas to the problem. Progress may be slow. The Federal Energy Administration has proposed a target of 12 percent reduction in energy consumed per unit of output in the meatpacking industry by 1980 from the base year of 1972. The corresponding target in the sausage processing industry is 11 percent. Progress, yes. But hardly the kind of change that will significantly make up for the price rises we have had and are likely to incur in energy.

There are many other important issues in the meat industry today. Since our topic today deals with "costs and related issues", I will try to sort out those which appear to be greatest in cost implications.

Some very important issues such as the morality of the level of meat consumption which exists in the United States, the healthfulness of meat consumption with regards to the ingestion of fat, its effect on cholesterol levels, et cetera, the very important nitrite issues, the whole question of additives—all most important issues, but for the most part they are not principally cost issues. Certainly, the eventual outcome of these issues, should they result in doubling or halving the production and consumption of meat in any reasonably short period

of time, would have tremendous cost and income consequences to the meat industry and especially to the livestock feeding and grain production industries and farmland owners. But the questions are not principally cost related.

There are other important issues which are most cost related. For the most part they result in more services and information for consumers, more safety and work satisfaction for employees and a better physical environment for society. Most would be considered by most people to be desirable. Unfortunately, most do add to the cost of processing and distribution.

Some of these issues include nutritional labeling and freshness labeling—an improved service to consumers at fairly modest increased costs. There are new laws and regulations which afford greater protection and improved working conditions for employees. Progressive changes here are most laudable. But, unfortunately, most add to the cost of processing and distribution. Other new laws and regulations in recent years are yielding us cleaner air and water, fewer odor problems and more attractive industrial sites. These are very desirable but in almost all cases has direct cost implications. In most of these kinds of questions, it is a matter of society determining the value of the benefits against the costs of obtaining them.

The amount and kind of packaging has from time to time been an issue in meats. With smaller households and more eating away from home, the size of package desired by consumers has declined considerably. Thus, everything else constant, it now takes more packaging per pound of meat merchandised. With increased processing and fabrication at packing and retailer warehouses, the package has to be better to withstand longer periods of transportation and more handling. And modern "vacuum" packaging keeps the product fresher and at a higher level of quality for the consumer. Packaging technology has been serving the consumer by optimizing size of package, quality of product and visibility of product.

During the last year or two the issue of mechanically deboned meat has arisen. Manual boning of meat results in 1 to 3 percent of the original weight of meat left on bones and lost to human consumption. In recent years, technological developments have resulted in mechanical methods to retrieve the heretofore wasted meat. The calcium content of the deboned meat is higher and the binding qualities are somewhat different. There are differences of opinion. Among the choices are to ban it from human consumption, to permit its use without restriction or labeling, or to permit its use with proper identification on the label. It would seem that if nutritionists are satisfied with the quality of the deboned meat for human consumption, that with food scarce, its use should be permitted with proper labeling information.

The issue of meat imports has reemerged recently as the cattle production cycle is peaking and cow prices have been relatively low. Although U.S. agriculture is a large net exporter and generally favors freer world trade to open up and keep open world markets, some segments of U.S. agriculture face strong competition from low-cost producers.

One of these segments is the cattle producer. Processors and consumers would be happy to import more lean beef but cattlemen object. The pork sector is in near balance the last year or two as pork exports, particularly to Japan, have increased to mostly offset canned pork imports from Europe.

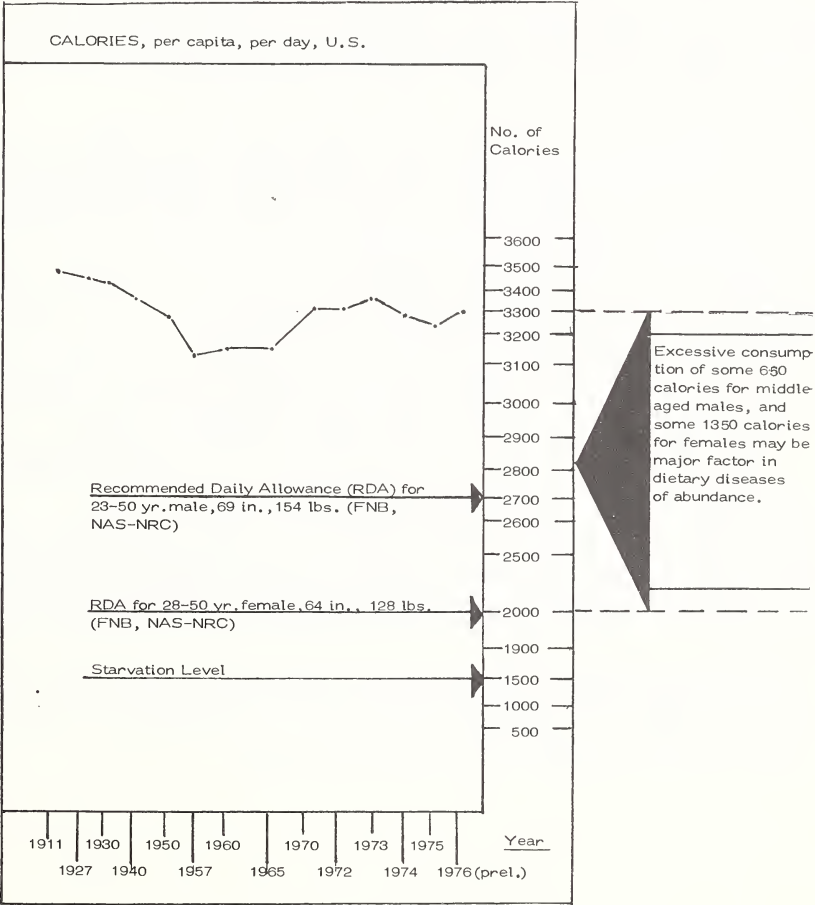
There are many important issues in the livestock-meat industry today. In a business environment of rapidly rising costs, some of the issues have direct cost implications. Others may be equally or more important but not principally cost related. The industry is working hard to battle problems of rising costs, variable production, while providing consumers with better products and more and better services, farmers and feeders with a good market and society with a better environment. The job is not easy. The need for good managers and people to do this is vital. The need for new and upgraded capital investment is equally vital. And it will take lots of investment—investment which will have to come out of earnings or borrowings which, of course, ultimately depend upon earnings for their availability and repayment. But problems mean opportunities. And solutions mean better products and desired services for the public. Other things being normal, better products and desired services for the public will ensure a viable livestock and meat industry.

# DIETARY TRENDS AND NATIONAL HEALTH

(By Graham T. T. Molitor,\* Director of Government Relations,  
General Mills, Inc.)

## EXCESS CALORIES

Americans eat too much. Calorie consumption is excessive to needs. America is an overweight society. Many Americans consume, on the average, some 650-1350 more calories than they need:



\*The views expressed in this paper are those of the author and not necessarily those of the USDA.



### *Obesity: A national health problem*

Obesity—brought on by overeating, improper diet and lack of exercise—is one of the most widespread public health problems today. Estimates of the number of obese Americans vary tremendously—from 20 percent to nearly 60 percent of the population. One of the high estimates asserts 58 percent of all American adults (79 million persons) suffer from obesity to some degree.<sup>1</sup> The American Heart Association estimates that 40 percent of Americans are overweight. HEW's estimate is 30 percent.<sup>2</sup> The American Heart Association estimates that weight-related cardiovascular disease is prevalent in nearly 15 percent of the population. The Metropolitan Life Insurance Company estimates that a person over 45 years of age who is 10 pounds overweight decreases his chances for survival by some 8 percent; for each additional pound of excess weight the risk of dying prematurely rises approximately 1 percent.<sup>3</sup>

Abundance, coupled with unprecedented affluence, has contributed to overeating which has brought on new health hazards. Today overeating and lack of proper exercise threatens not only health, but life itself. Weight control, not the age-old task of simply obtaining enough food to keep going, describes America's food problem.

### *Caloric cutbacks*

In an effort to cut back the excess consumption of calories and to bring overconsumption under control, increasing attention will be given to the "nutritional load" carried by each calorie consumed. Consuming less food, Americans will become increasingly selective about eating the "right" kinds of foods.

A number of countries have already given serious consideration to their national state of health and have responded to food overindulgence. Two most significant trends are underway:

1. Caloric consumption per capita between the years 1955-1973 has declined in the leading Scandinavian countries—Denmark, Norway, Sweden—and in the United Kingdom;
2. Animal fat consumption per capita also began a gradual decline during the 1960's in Sweden, Denmark, Canada, United Kingdom and in the United States.<sup>4</sup>

While all the evidence is not in, it does appear that excessive calories, and particularly excessive calories from saturated fats, may be a major contributor to many of the diseases and disorders afflicting populations in these advanced, affluent countries. More and more, we are likely to see national agricultural and food policy planning aimed

<sup>1</sup> Peter Wyden, *The Overweight Society* (New York: William Morrow & Co., 1966), p. 2.

<sup>2</sup> U.S. Department of Health, Education & Welfare, *Forward Plan for Health, Fiscal Year 1977-81* (Washington, D.C.: Public Health Service, 1975), pp. 116, 227.

<sup>3</sup> Dr. David Reuben, *The Save Your Life Diet* (New York: Ballantine Books, 1975), p. 95.

<sup>4</sup> *Food Consumption Statistics, 1955, 1973* (Paris: OECD, 1975).



at selective reduction of food intakes deemed harmful or injurious to individual well-being.

Americans, along with many other persons living in the advanced affluent nations, are overfed victims of abundance. Obesity is an obvious target of concern.

Man's lifestyle began to change markedly when he ceased being a food-hunter and food-gatherer and became a food-producer. At that point, dietary needs began to decline. Successive changeovers—from agrarian to industrial, on to a service and toward knowledge/education/information based economy—place lesser demands upon energy input/output. In today's technological society machines take over an increasing number of the tasks, jobs involve less arduous work—brains not brawn—humans enjoy ever shorter work weeks, longer vacations, more holidays, and earlier retirements, and the result is a substantial reduction of demands upon human energy output. In our emerging post-industrial lifestyle humans are becoming increasingly sedentary and caloric needs have been lessened, as a result.

Lifestyles have changed but traditional eating habits, stolidly culturally engrained, have not. "Cultural lag," the slowness of adaptation, heightens the problem. Many Americans, still set in their ways, consume food in quantities keyed to needs of a bygone era.

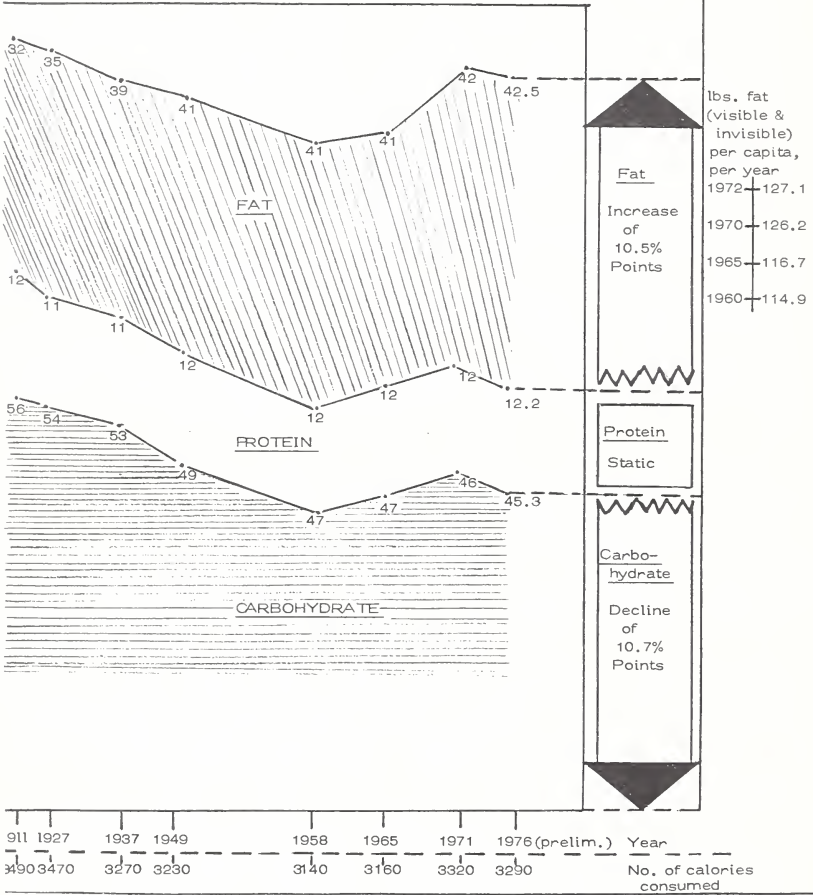
Three hearty square meals a day, required during a time when men lived by the "sweat of their brow," have gone by the wayside. Today, for many persons, dinner remains the only planned meal of the day. We have become a Nation of "nibblers." Our hummingbird eating styles involve 5–7 snacks or mini-meals a day: instant breakfasts; mid-morning and mid-afternoon coffee breaks, lunchboxes and brown-bags, cocktail hour snacks, TV snacks, and bedtime snacks. There is some evidence that more frequent intake of smaller quantities of food enables the body to assimilate more of the nutrients contained in the food, further lessening consumption needs. All of these changes result in a lower level of caloric and attendant nutritive requirements.

It's that simple. An increasingly sedentary lifestyle requires lower caloric/nutritive intake to maintain necessary body functions.

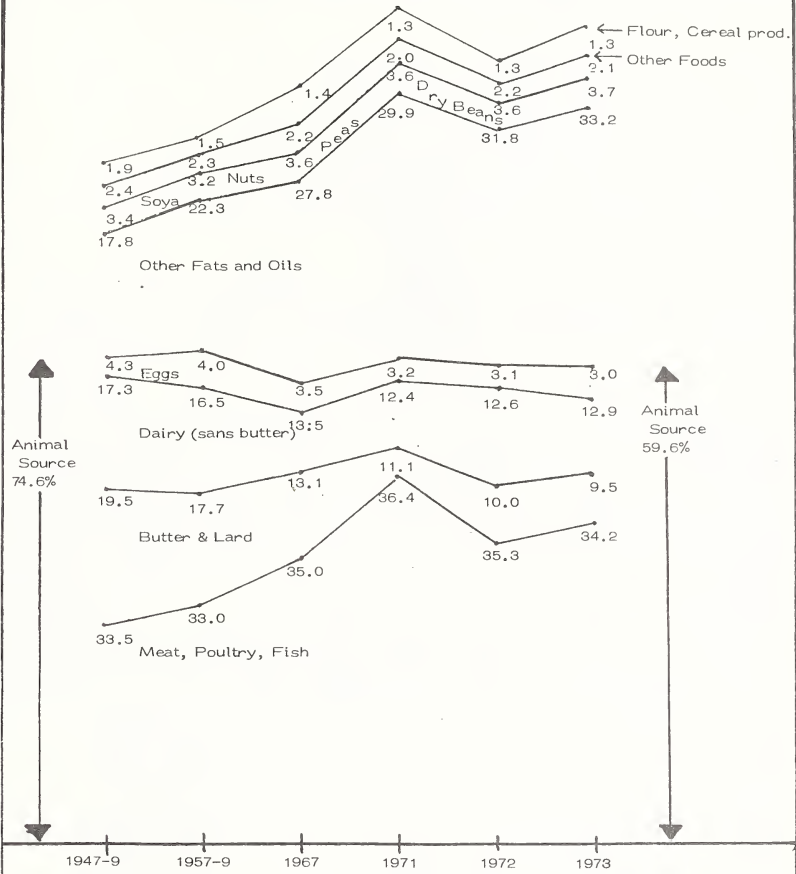
### *Sources of calories in the diet*

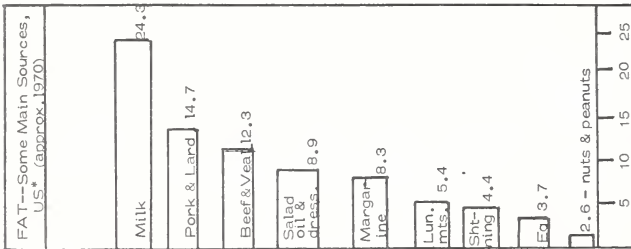
The obvious question for any society faced with excessively high consumption of calories is where do the unneeded calories come from? The next chart gives some answers—consumption of fat is up, protein remains static, and carbohydrate has declined. (Keep in mind that the caloric value of 1 gram of fat is approximately 2 times that of basic carbohydrates or proteins.)

## CALORIES -- % From 3 Major Nutrients, U.S.

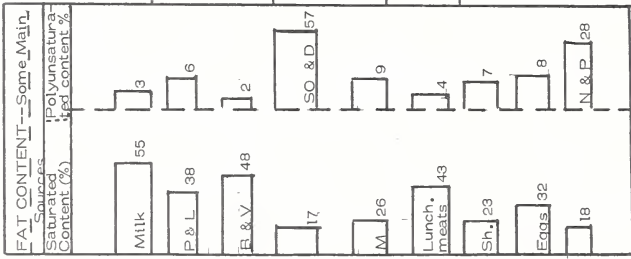


FAT -- SOURCE, %, PER CAPITA, PER DAY, U. S.





\*List is partial, representing 84.6% of total fat intake, but highlights principal dietary sources of fat.



Saturated fat includes lauric, myristic, and palmitic acids which increase cholesterol; it is primarily animal-derived that consumption be reduced.

Saturated Fatty Acids	
Food	%
Coconut Oil	90-93
Palm Kernel	85
Palm Oil	57
Lamb Tallow	51-55
Butter	48-68
Beef Lard	45-58
Chicken	38-50
Cotton Seed oil	25-26
Peanut Oil	18-21
Fish	15-25
Olive Oil	14-15
Corn Oil	14
Soybean Oil	13-14
Sunflower Oil	11
Safflower Oil	10

Linoleic Acid	
Food or Oil	%
Coconut	2
Butter Fat	2
Cocoa Butter	2
Lard	14
Olive	15
Peanut	31
Sesame	43
Soybean	50
Cottonseed	54
Corn	57
Sunflower	68
Safflower	75

Cholesterol	
Contents, some main foods	est. mg/100 g
Eggs	470
Liver	250
Butter	240
Meat (untrimmed)	100
Lean Meat (trimmed)	90
Poultry	75
Fish	70
Land	56

Human body cannot synthesize the 2 polyunsaturated acids from available protein or carbohydrate—linoleic acid, linolenic acid. Linoleic acid decreases cholesterol; it is deemed essential. Recommended consumption is 2% of total calories consumed.

## INCREASED CONSUMPTION OF FAT AND EXTRA CALORIES

The only basic diet component for which consumption has been increasing is fat. Dietary intake of fat (as a percent of total calories consumed) is up over 10 percent within the last 60 years alone, as indicated in the chart on p. 56.

Nutrient fat consumed is dominated by animal-source fats—which tend to be more highly saturated and contain more cholesterol than plant-source fats. Quantitative intake of animal fats has declined—from 104 grams in 1909–13 down to 93 grams in 1973. However, animal fat still accounts for nearly two-thirds of total fat consumed.

Plant-source fats and oils have increased some threefold in the corresponding period—from 21 grams (1909–13) up to 63 grams (1973).

*Fat and possible health hazards*

Consumption levels of fat have risen to the point where they may pose possible health hazards, particularly if the trend continues upward. (See chart on p. 57.)

Increasingly, professional medical organizations specializing in particular diseases, especially diseases of the heart, have stressed the need to avoid foods high in fat. The American Heart Association indicts foods high in saturated fats (butter; cream and cream substitutes; yolk of egg; cheese; chocolate; coconut oil) and suggests persons on fat-controlled, low cholesterol diets should avoid them. The next chart details which foods make up fat consumption and further highlights foods highest in saturated/polyunsaturated fatty acid content, cholesterol, and linoleic acid.

*Fat consumption trends*

The body must have fat. About that there is little question. Main debate rages around the controversial question of how much and what kinds. As a general rule of thumb, 25–35 percent of total calories from fat—all sources—is suggested. Recommendations in 1970 from the Inter-Society Commission for Heart Disease Resources<sup>5</sup> and endorsed by the American Heart Association<sup>6</sup> called for a substantial reduction of dietary saturated fats—to less than 10 percent of calories—and an overall limit for fat of 35 percent of total calories. Still another recommendation calls for a minimum for fat consumption of not less than 20–25 percent of total caloric intake.<sup>7</sup>

If excessive diet fat concerns an individual, foods high in fat content are likely to experience declining demand. The percent of fat in typical foods varies all the way from 100 percent down to zero:

<sup>5</sup> Report of the Inter-Society Commission for Heart Disease Resources, "Primary Prevention of the Artherosclerotic Diseases," *Circulation* 42: A-55, 1970.

<sup>6</sup> American Heart Association: Diet and Coronary Heart Disease, statement of the Committee on Nutrition, 1973.

<sup>7</sup> Lenna F. Cooper, Edith M. Barber, Helen S. Mitchell & Henderika J. Rynbergen, *Nutrition in Health and Disease*, 13th ed. (Philadelphia, J. B. Lippincott Co., 1958), p. 29.

## The Percentage of Fat in Some Typical Foods

Fat	The Foods			
Per cent between 100-91	lard salad and cooking oils vegetable fats			
90-81	butter fat salt pork margarine			
80-71	mayonnaise pecans			
70-61	walnuts			
60-51	bacon baking chocolate			
50-41	peanuts peanut butter			
40-31	Cheddar cheese chocolate bar coconut	egg yolk heavy cream pork chop	potato chips salad dressing	
30-21	beef pattie frankfurter ham	sirloin steak		
20-11	apple pie avocado chocolate	doughnut egg cake	lamb roast luncheon meats French fried potatoes	veal cutlet
10-0	apple baked potato beef liver	bread carrot chicken	cottage cheese halibut ice cream	milk oatmeal salmon
none	sugars and sirups			

Adapted from values in *Composition of Foods—Raw, Processed, Prepared*. U.S. Dept. Agr., Agr. Handbook 8, revised 1963.

Public awareness of information on fats in foods is likely to depress consumption of foods high in saturated fats.

FDA action is pending on a proposal specifying fat labeling. New disclosure requirements and increasing consumer interest in continued optimum health will make the public increasingly aware of the role fats play in the diet. As a result, decreasing use of highly saturated palm, palm nut, and coconut oils is likely, while those with the least amount of saturated fat—safflower and sunflower oil—may be increased significantly.



## *Cholesterol*

Enormous controversy has been centered around the role of cholesterol in the human diet. Half-truths abound. Exaggerations and myths have been perpetuated to the extent that much misunderstanding surrounds the role cholesterol plays in the diet.

Synthesis of cholesterol by the body occurs at the rate of 2,000–3,000 mgs. per day according to reported calculations by one research team.<sup>8</sup> Daily cholesterol intake from foods has ranged between 509–556 mg. for more than the last half century:

Years:	Cholesterol (mg.)
1909 to 1913_____	509
1925 to 1929_____	524
1935 to 1939_____	493
1947 to 1949_____	577
1957 to 1959_____	578
1965 _____	540
1970 _____	556

Because of the relatively low daily dietary amounts, dietary cholesterol has been considered fairly inconsequential.<sup>9</sup> Some researchers feel that elimination of cholesterol-containing foods from the diet may stimulate the body's production of cholesterol.

Another research team estimated average adult daily consumption between 500–800 mg. of cholesterol and that the body synthesis of cholesterol approaches 1500 mg. daily.<sup>10</sup>

Numerous studies link diets high in fats (especially saturated fats) to high serum cholesterol levels and high serum cholesterol levels to coronary heart disease. Nonetheless, these contradictory views continually have been put forward. A diversity of opinion still persists.

The controversies surrounding the appropriate role of cholesterol in the diet are highly technical, wide-ranging and far from being conclusively settled.

While controversies, such as those mentioned, rage, numerous medical authorities and organizations have spoken out, suggesting maximum cholesterol intake levels. The Food and Nutrition Committee of the American Health Foundation in 1970 recommended a daily maximum intake of 300 mg.—the Inter-Society Commission for Heart Disease Resources and American Heart Association concur.

Consumers—whose awareness of the issues at stake should not be underestimated—have responded. Concerned by the probable connection between high intake levels of saturated (animal) fat/cholesterol/heart disease/atherosclerosis, per capita consumption has declined for animal products high in cholesterol/saturated fatty acid.

<sup>8</sup> Eva D. Wilson, Katherine H. Fisher & Mary E. Fuqua, *Principles of Nutrition*, 2d ed. (New York: John Wiley & Sons, 1965), p. 49.

<sup>9</sup> *Ibid.*, n. 49.

<sup>10</sup> R. I. Hodges & W. A. Krehl, 1963, "Cholesterol as Related to Atherosclerosis—A Review of the Literature," July 1961 to July 1962, Cereal Institute Inc., Chicago, Ill., p. 8.

Illustrative of the point are the following reductions in per capita consumption:

- eggs (decline from 386 in 1950 to 278 eggs in 1975);
- milk (consumption declined from 322 pounds in 1964 down to 292 in 1975);
- butter (consumption declined from 7.5 pounds in 1964 down to 4.7 pounds in 1975).<sup>11</sup>

#### *Government efforts to reduce dietary fat*

The Swedish government has been especially concerned over substantial increases of fat consumption in their national diet. Calories from fat rose from a low during 1876–85 of 19 percent total calories to a high of 42 percent (nearly one-half of all calories consumed) in 1965.

Among corrective measures undertaken to reverse this dietary trend has been the requirement to explicitly disclose fat content of products high in fat. Starting in 1973 with butter and margarine, cooking fats and oils, cheeses, and milk, the disclosure was extended to sausage-type meats and to ice cream in 1974.

Disclosure is in terms of grams of fat per hundred grams—or, effectively, a percentage disclosure. The disclosure is not only for saturated fats for polyunsaturated fat as well. Linoleic acid, in some cases, also must be disclosed.

In practice, many packages I personally inspected also included monosaturated fat content. Not infrequently labels also indicated the source of the fat or oil. This disclosure went beyond mere indication of animal or vegetable fat, often indicating the particular source (e.g., corn oil, safflower oil, etc.). As well as labeling the amount of linoleic acid, some packages also listed cholesterol content.

Such explicit (even precise) disclosure is not expected to be understood immediately by the general public. However, it is felt that over a period of time, an understanding will develop, and this kind of information can then be translated into a meaningful tool for better dietary choices.

#### CALORIES FROM ALCOHOL CONSUMPTION

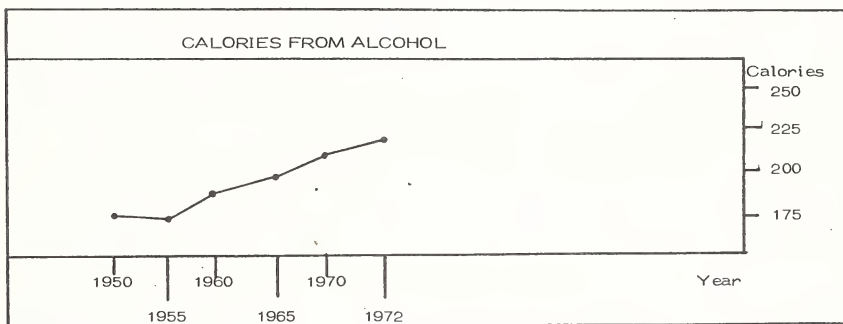
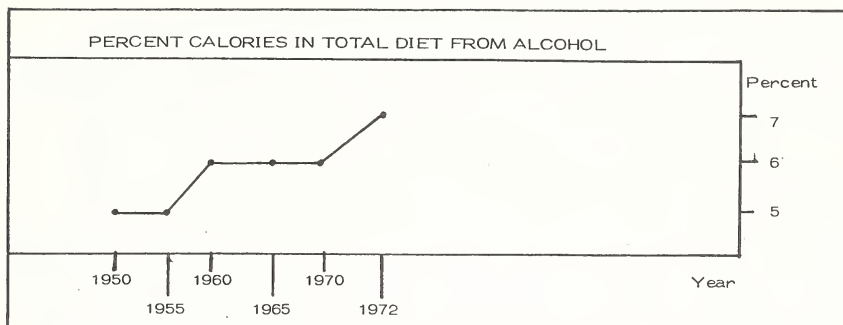
High and steadily increasing levels of alcohol consumption account for a large number of calories in the diet. Alcohol, in recent years, has accounted for some 7 percent of total calories in the diet, or some 225 calories per capita/per day. Alcohol has no redeeming virtues from a nutritional standpoint.

#### *Alcohol and cirrhosis of liver*

Cirrhosis today is a leading killer disease in America, ranking as a cause of death:

- 3rd for persons ages 25–34 (surpassed only by cancer and heart disease);
- 4th for persons ages 55–64.

<sup>11</sup> *National Food Situation* (Washington, D.C.: Economic Research Service, USDA, 1975).



### *Alcohol consumption and cirrhosis mortality*

The evidence is not conclusive as to the precise role increased consumption of alcohol plays in the increasing incidence of cirrhosis of the liver. While some doubts are raised with respect to the appropriateness of the correlation between cirrhosis of the liver and high levels of alcohol consumption, there is a broad consensus of opinion linking the two.

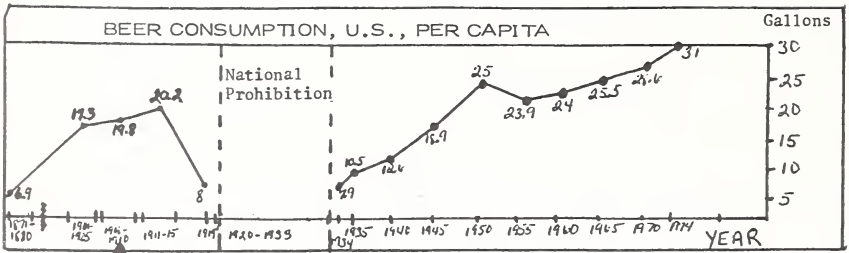
A most dramatic graphic presentation highlighting the correlation between alcohol consumption (all forms—beer, wine, distilled spirits) and cirrhosis of the liver mortality follows:

At the turn of the century, State and local prohibition was well underway. By 1908 a virtual "tidal wave" of State and local prohibition laws had been enacted. Consumption of alcohol beverages of all kinds dropped precipitously during this period.

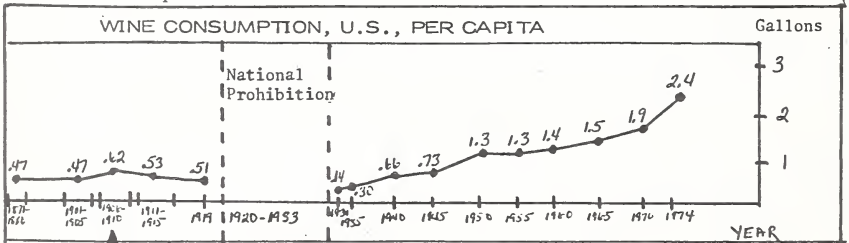
The temperance movement, already having succeeded in imposing "dry" laws in a substantial majority of the States, moved toward national prohibition which became the law of the land from 1920 to 1933. Mortality rates for cirrhosis plummeted during this "dry" period—the cirrhosis morbidity rate per 100,000 during Prohibition dropped to one-half the rate it had been in 1910, reaching an all-time low for this century.

Following the repeal of the prohibition amendment, the rate of alcohol consumption began climbing and has been steadily rising ever

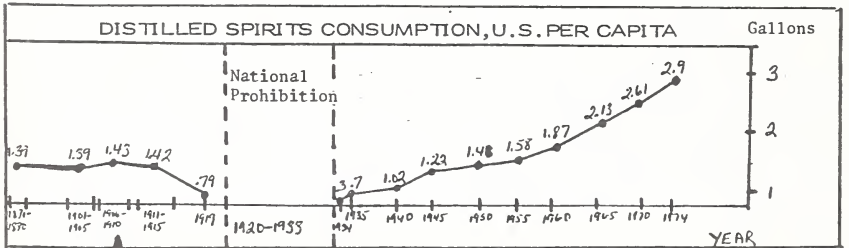
## ALCOHOL CONSUMPTION &amp; CIRRHOSIS MORTALITY



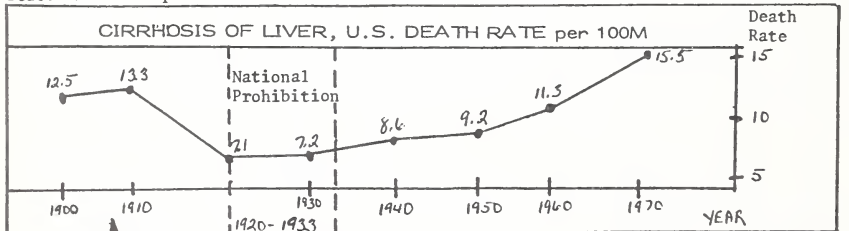
1908 "Tidal Wave" of  
State and local prohibition



1908 "Tidal Wave" of  
State and local prohibition



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1908  
"Tidal Wave" of State and  
local prohibition

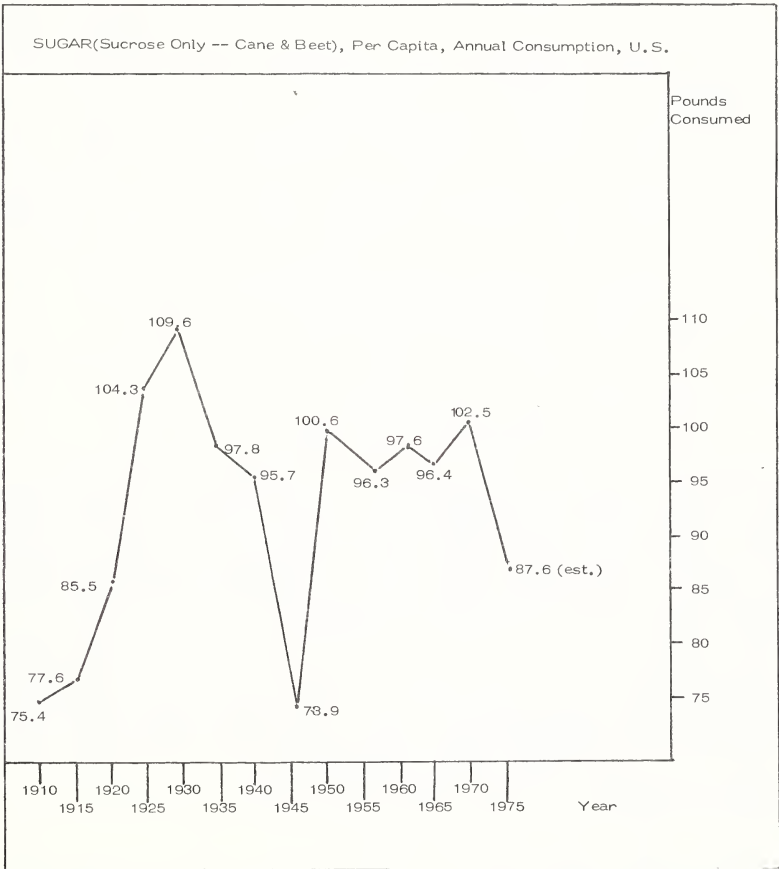
By 1908 many Southern State and local governments already  
had enacted prohibition laws--also: Ill., Mich., Colo.,  
Nebr., Ind., Ohio, Wisc., and Minn.

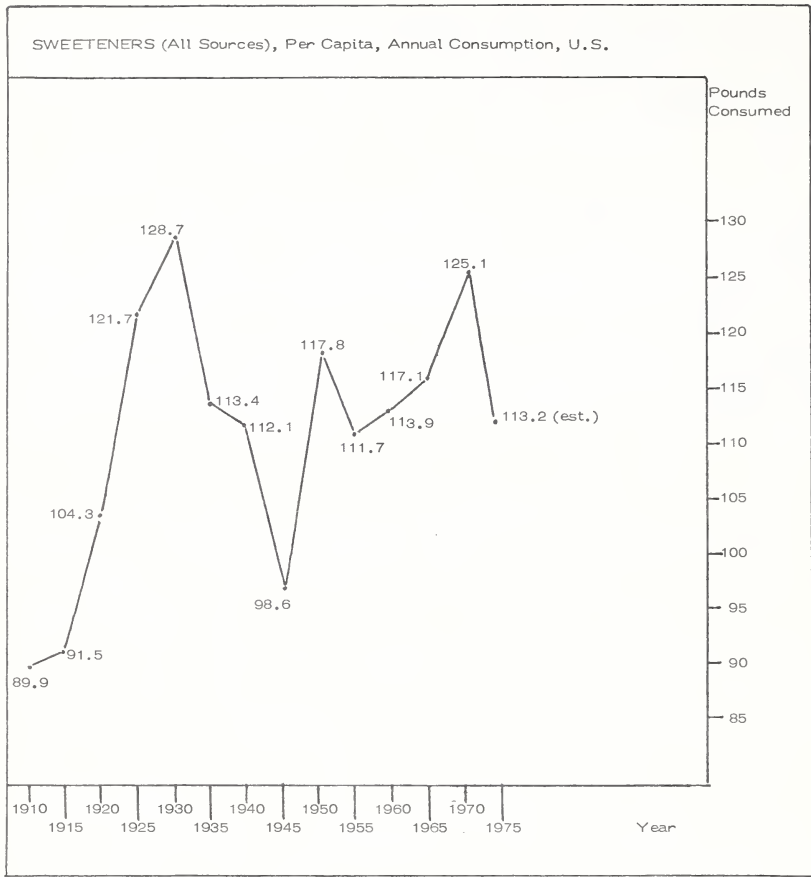
since. Closely tracking this increase in per capita consumption of alcohol is the incidence of cirrhosis of the liver which has reached an all-time high for the 20th century. The rate of morbidity per 100,000 population for cirrhosis of the liver currently is running at a rate in excess of 200 percent the rate during Prohibition.

From the standpoints of nutrition, national health, and excess calories/obesity, moderation of alcohol consumption is likely. Lowered levels of consumption means less demand for agricultural raw materials from which such beverages are derived.

#### SUCROSE CONSUMPTION—STATIC FOR 50 YEARS, NOW DECLINING

Another controversial carbohydrate is sucrose. There is a widespread misapprehension that sugar consumption has been increasing dramatically in recent years. Two facts are worthy of note. First, sugar consumption over the past half-century has been stabilized at about 100 pounds per capita per year. Second, the sharp drop in per capita consumption just within the last few years which came about largely as a result of higher prices and the drawing down of inventories on hand. Historical consumption patterns for sucrose (cane and beet sugar), as well as total sweeteners, are depicted in the following charts.





#### FIBER/ROUGHAGE/BULK

Voluminous medical articles and books—some 600 of them published by 500 prominent medical authorities<sup>12</sup>—voice concern over the lack of dietary roughage and warn of adverse implications involving a variety of health problems. Popular journals have picked up the issue and have substantially increased public awareness of possible links between fiber deficiency and the following diseases/disorders:

- cancer of the colon and rectum (second largest cancer killer behind lung cancer);
- heart disease;
- gastrointestinal disorders;
- varicose veins (afflicts 1 out of 10 persons);
- thrombosis (and pulmonary embolism);
- hiatus hernia;
- hemorrhoids;

<sup>12</sup> David Reuben, *op. cit.*, pp. 21, 81.



- polyps of the colon (afflicts 1 out of every 5 adults);
- peptic ulcer;
- gallstones;
- diabetes;
- constipation;
- phlebitis;
- diverticulitis/diverticulosis (afflicts 40 percent over age 40; 70 percent over age 70).

Africans who consume large amounts of carbohydrates and fiber experience very low rates of the aforementioned afflictions. Dietary habits, notably the high consumption of fiber, are credited with this fact.

Widely claimed benefits of a high-fiber diet include:

- the increased excretion of cholesterol from the body;
- a reduction in the amount of cholesterol secreted by the liver;
- a lowering of the triglycerides in human blood.

Careful scientific evaluation and judgment as to the merit of these claims is needed to provide direction to the consuming public.

#### *Fiber consumption level*

Fiber consumption of 25 grams (approximately 1 ounce) daily has been indicated for African villagers, and a daily dietary intake of 24 grams of fiber has been recommended for Americans.<sup>13</sup> Another authority suggests the daily need for fiber at only 4–7 milligrams.<sup>14</sup> Current U.S. consumption of crude fiber is estimated at 4 grams per capita per day, a decline from the 6 grams daily per capita consumption level of 1909–13.<sup>15,16</sup> The reduction is attributed primarily to lower consumption of grain and potatoes.

#### *Crude fiber and food lipids available per capita per day in the United States food supply*

Years	Total nutrient fat	Fatty acids			Choles- terol	Crude fiber
		Saturated	Oleic acid	Linoleic acid		
	(g)	(g)	(g)	(g)	(mg)	(g)
1909–1913.....	125	50.3	51.5	10.7	509	6.1
1925–1929.....	135	53.3	55.2	12.5	524	5.8
1935–1939.....	133	52.9	54.5	12.7	493	5.5
1947–1949.....	141	54.4	58.0	14.8	577	4.9
1957–1959.....	143	54.7	58.2	16.6	578	4.4
1965.....	145	53.9	58.8	19.1	540	4.2
1970.....	157	55.9	63.1	23.3	556	4.2
1974.....	158	56.0	62.9	24.2	-----	4.3

<sup>13</sup> Ibid., p. 82.

<sup>14</sup> Wilson et al., op. cit., p. 27.

<sup>15</sup> Friend and Martson, "Nutritional Review" (Washington, D.C.: USDA ARS, Consumer & Food Economic Institute, January 1975).

<sup>16</sup> William A. Gortner, "Nutrition in the United States, 1970 to 1974," *Cancer Research*, Vol. 35, November 1975.

Despite the doubling of per capita fruit and vegetable consumption over nearly 60 years, dietary fiber obtained from these sources has probably declined. Per capita consumption of fruits and vegetables in 1909 stood at 146 pounds and increased to 273 pounds by 1970. Peeling, boiling, canning and dehydrating substantially depleted the available fiber.

*Changing sources of fiber*

Current interest in dietary fiber has encouraged a 20 percent increase in sales of ready-to-eat bran cereals during the last year, according to A. C. Nielson Company. Crude fiber content in cereal products varies substantially:

The amount of crude fiber in various grain foods\*

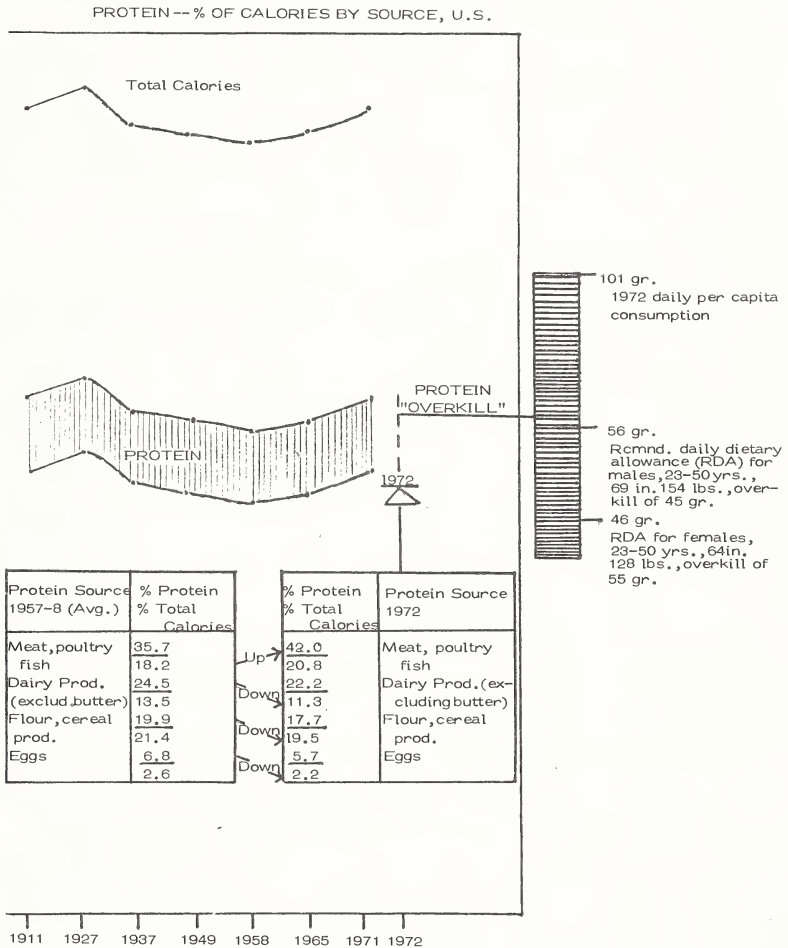
Food	<u>Approximate quantity of crude fiber</u>	
	Percent	Grams per 1 oz. serving
High bran content cereals	7.5	2.0
40% bran cereals	3.5	1.0
Raisin bran cereals	2.5	0.7
Wheat germ	2.0	0.6
Whole wheat cereals (shredded, flaked or formed)	1.8	0.5
Hot whole wheat cereals	1.8	0.5
Hot oat cereals	1.1	0.3
Whole wheat bread	1.6	0.4**

\*Values for breakfast cereals furnished by manufacturers; bread values from Composition of Foods, USDA, Handbook #8, 1963.

\*\*Per slice

# PROTEIN OVERKILL

Protein consumption has been amazingly constant over the years as indicated in the following chart:



Note that the RDA for adult males is only 56 grams of protein per day. USDA statistics reveal an availability for consumption of 100-110 grams of protein per capita per day. This amounts to a "protein overkill" of some 50 percent. And, protein is the most expensive nutrient in our diets.

### *Protein sufficiency*

Protein intake, calculated on a "disappearance" basis, already exceeds per capita daily intake requirements by a factor of nearly 2x. Actual nutrient availability or human assimilation is frustrated in a number of ways:

1. Protein quality, a measure of the effectiveness with which the body is able to absorb or utilize the available protein, is largely regulated by the proper balance of essential or "limiting" amino acids. Deficiencies in the balance of these amino acids substantially reduces the protein quality. Efforts are underway along two fronts to improve the protein quality: genetically (by altering the very cell structure of seeds used to grow basic protein foods), and synthetically (by isolating missing amino acids or synthesizing them in the laboratory for later enrichment of protein deficient foods);
2. Disappearance data is a gross measurement and does not consider losses occurring prior to actual consumption. Based upon retail weight, substantial losses of moisture (and deterioration of nutrients, including protein itself) along the distribution chain as well as in the home are ignored. Spoilage, waste, trimmings, and scrap feeding of household pets also are not factored into disappearance data. Perhaps most important, home preparation methods are not considered—preparation not only affects the actual amounts finally consumed but heat sensitive nutrients may also be destroyed by inadequate or improper home preparation.

Protein consumption increases per capita are unlikely, and eventually may decline; sources of proteins will gravitate more toward non-animal sources; and more complete (amino acid balanced) proteins will be sought.

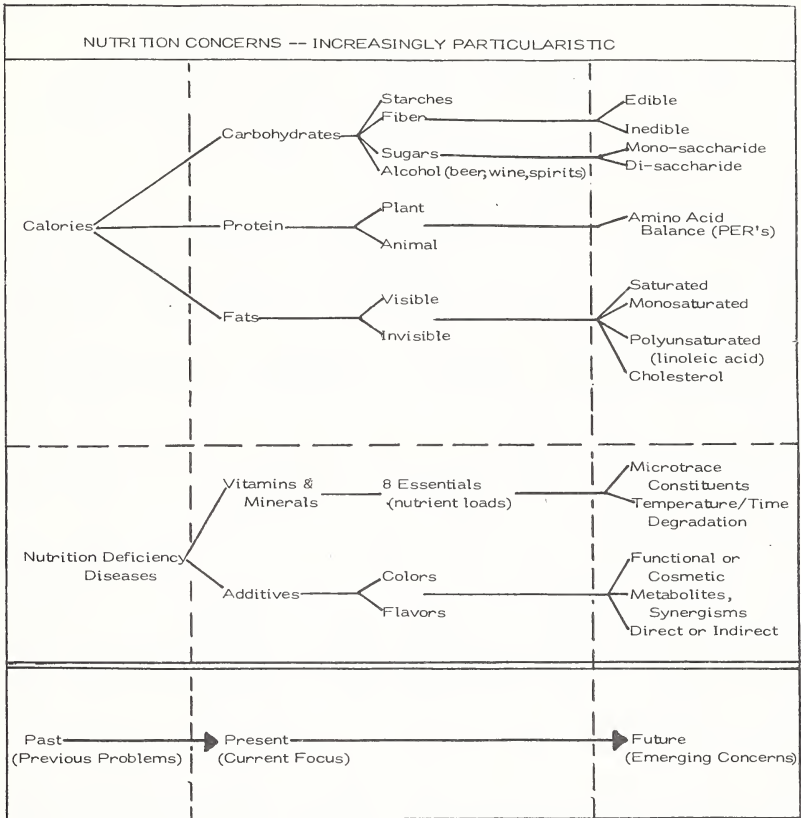
### NUTRITION TRENDS—PAST, PRESENT, AND FUTURE

Nutrition concerns hitherto have centered mainly on nutrition deficiency diseases whose impacts were clearly visible and the problem of simply getting enough calories to avoid hunger or starvation.

Present concerns are focused mainly on the next level of food components—carbohydrate, protein, and fat. New roles for vitamins and minerals are continually being determined. The impact of foods supposed deleterious to the diet are being carefully considered.

Turning the microscope down still one stage further, we are able to discern some of the increasingly sophisticated nutrition problems. These matters are highly technical and generally go far beyond present levels of public understanding. Diet adequacy in meeting human needs increasingly will be in the realm of the laboratory specialist. Increasingly, future concerns will be focused down to the biochemical and to the level of cellular metabolism. Super-abundance brings along with it an embarrassment of riches—increasingly, attention will be focused on *over-nutrition* as sharply contrasted with the earlier problems of *under-nutrition*.

[Current and impending nutrition concerns are depicted in the following chart:]



## THE AWARENESS OF TODAY'S CONSUMER

(By Nancy Harvey Steorts, Special Assistant to the Secretary of Agriculture for Consumer Affairs, USDA)

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In recent years, consumers have been faced with rapidly changing life-styles. Coupled with the desire to live a more comfortable way of life amid this change, they have become more motivated, better prepared, and more attuned to the complexities of the society in which they live.

Consequently, today's consumers are taking more of an interest in the shopping experience.

They are no longer indifferent to ingredients. Today's consumers have become label readers.

Faced, as we all are, with economic uncertainty, consumers are now more economically aware than ever before. Consumers have the willingness to buy, but they also have a desire to save.

They are more quality conscious. Today's consumers are more aware of nutritional value, wanting the highest quality for their food dollar.

Just as did their forebearers for generations back, today's consumers want the best possible product for the best possible price.

At the request of the President, the Federal Departments and Agencies have prepared Consumer Representation Plans which will make the Government more effective and responsive to the public's needs and wants.

The Department of Agriculture's plan outlines specific steps each agency will take to insure consumer involvement when it is contemplating an action having a significant impact on consumers. The plan takes into consideration the following:

1. Is there a history of consumer interest in the issue?
2. Are there adverse social and economic impacts?
3. Are these impacts long-term or short-term?
4. Are the consequences irreversible or irretrievable?
5. Is there potential for widespread controversy?

Agency administrators will seek consumer input at an early stage in connection with any proposal involving a major change in agency policy, when the issues are likely to have a significant impact on consumers.

When proposals are published in the Federal Register, and such proposals have been identified as having significant impact on consumers, an extended comment period will be utilized to provide an adequate opportunity for consumer input.

When any such proposal is published in the Federal Register, it will contain a "consumer summary," a short explanation of the proposal in easy-to-understand language spelling out its major points and its possible impact on consumers. Announcement of final Depart-



mental action in the Federal Register on such proposal will include a concise statement evaluating the viewpoints expressed by consumers.

In addition, the plan calls for the establishment of two committees for consumer matters:

A Consumer Responsiveness Committee, comprised of high-ranking department officials that will advise the Secretary on actions and activities of the Department as they relate to consumer interest and participation; and

A National Consumer Advisory Committee, comprised of consumer representatives, which will meet regularly and advise the Secretary and Department officials regarding significant policy matters of interest to consumers as well as the overall effectiveness of the Department's consumer efforts.

Other parts of the plan call for consumer representation on all other national advisory committees whose composition is not prescribed by law and which deal with matters having consumer impact; improved complaint handling; and an accountability process to assure that department officials are adhering to the plan.

In addition, the role of the Special Assistant to the Secretary for Consumer Affairs will be strengthened and the plan provides a charter for this position.

Consumer coordinators have been appointed in each major departmental agency. These people will advise the agency administrators on consumer matters and reflect consumer viewpoints on significant agency issues.

I think you can see that there is an obvious commitment from the Department of Agriculture and the Federal Government to be more responsive to the increase in consumer demands—the voice of the consumer will no longer be met with an echo.

Consumers are concerned about all aspects of the marketing chain—from the farm to the grocer's shelves—and rightfully so. They are seeking better information to help them make the right choices for their needs and desires.

At the point of purchase, one of the best information tools is the label on the product. Although most food products comply with current Federal packaging and labeling laws and regulations, improvements are needed so that labels tell consumers what they need to know to compare and select those products best suited for them.

Ninety percent of the 1,400 respondents to a study conducted by USDA recently, regardless of age, education, or employment status, said price and open dates on labels were extremely useful. Well over half wanted all ingredient information. One half of the shoppers also indicated that they always, or almost always, read the ingredient on the label the first time they buy the product. Some members of households, however, had health problems and said they look for special information on the labels of food and beverage products when shopping.

Food processors are now required to put specific nutrition information on the labels of all fortified foods and all food for which a nutrition claim is made. More than half of the respondents said that nutrition information on food packaging labels was useful when shopping.

An interesting note, however, is that the population segments that need this information most were less likely to find it useful—those that had less education, those that had lower total family income, and those that were elderly. This could be because the information is too complex or because it is too difficult to read.

Many consumers write in with the complaint that much of the present label information is far outside their normal vocabulary. This information must be made more intelligible and more easily accessible to shoppers so that they may wisely evaluate what they are buying and consuming.

We are calling upon both government and industry to realize this consumer need for easier-to-understand food labeling. Food processors should share in the burden of demonstrating to consumers what really is inside a food package, especially where food safety or food additives are concerned.

I believe there should be a uniform system developed by government, industry, and even consumers themselves whereby consumers can quickly identify what they are buying and eating.

There seems to be a definite reaction by consumers to the changing pace of our every day lives. Consumers are more nutritionally aware today and are demanding food of high nutritional quality.

As a way to get an up-to-date measurement of changing consumer trends and attitudes relating to food, the Department of Agriculture's Economic Research Service has developed a survey system by which consumers are being queried periodically about a number of issues.

The first phase of this survey was conducted last spring, and covered such topics as food safety, label information, home gardening and canning, food shopping patterns, open-dating, unit pricing, away-from-home eating, and household energy use.

The survey shows that many consumers are becoming more budget conscious when they shop for food. Shoppers are now checking newspaper ads more frequently for "specials," saving and using more coupons, and buying more food in volume. Some consumers are making fewer trips to food stores, mainly to save gasoline. Others are now preparing food from "scratch" more often, mostly to save money.

The study also indicates that consumers are getting more food safety information from newspapers, television, and food labels.

There has been a great deal of media coverage of home gardening, but not much in terms of actual statistics. We found there has been a slight but steady increase in the number of households with fruit and vegetable home gardens over the past two years. Forty-three percent of the households planted a garden in 1974, 46 percent in 1975, and at the time of the survey, 48 percent either had already planted or intended to plant a garden in 1976. This would suggest that the interest in home gardening generated three or four years ago amid fast rising food prices may be firmly established and not necessarily transitory.

These same households have been or will now be home-canning their harvests. Our study found that almost 85 percent of those who did home-canning last year planned to preserve fruits and vegetables this year.

The survey also found that in a little over half of the households at least one member of the household has effected a change in diet, either because of a present health problem, or because of a desire to prevent a health problem.

Some of the foods that these changing dieters are eating more of are low-fat milk and cheese, fish, poultry, fresh fruits and fresh vegetables. There is now a shift toward salad vegetables, especially. Consumers are eating more green peppers, lettuce, raw broccoli, cauliflower and mushrooms.

Some of the foods changing dieters are eating less of are sweets and snacks, fried foods, soft drinks, sugar, ice cream and fatty red meats.

The study also showed that in 73 percent of the households sampled, some member of the household purchased food from a fast-food restaurant during 1975—at least twice a month.

Consumer response in the marketplace is mixed. In the last decade, sales of frozen TV dinners increased by 75 percent and are now over one-half billion dollars. Frozen vegetable use has continued to grow as well. Last year, consumers used more than 21 pounds per person, compared with 18 pounds in 1965.

At the same time, we are also witnessing a return to basics. Consumers are preparing more food from “scratch” both for nutritional and economic reasons. More consumers are growing their own fresh fruits and vegetables as well as canning and freezing them.

Data from surveys such as ours serve as input into potential consumer legislation. We found, for example, that uniform names and descriptions of meat cuts in stores were considered to be very useful by 70 percent of the shoppers. Consumers’ opinions about usefulness of various types of information can change over time, and we plan to monitor for such changes in the future.

The second phase of this survey will cover such topics as large-volume beef purchasing practices, purchase of and satisfaction with vegetable protein analogs, and types of foods prepared from “scratch.” Although the main emphasis in this particular survey has been on food, fiber products and related services will no doubt be examined in the months ahead.

Consumers need to be as concerned about what they purchase to eat away from home as they are about what they buy to eat at home.

At least one out of every three meals is eaten away from home. Now that dining out is becoming more a way of life, consumers are as interested in the restaurant where they eat as they are in the supermarket where they shop.

In my dealings with consumers, I have found that the greatest complaint they have regarding restaurants is that they tend to serve too much food for the average eater. Leftover meat, vegetables, bread and butter are simply tossed away when not eaten. Many consumers feel guilty leaving leftovers or asking for a doggie bag. Such waste, at a time when the world is concerned about a sufficient food supply, cannot be justified.

Why then, shouldn’t restaurants offer patrons a variety of portion sizes with appropriate adjustments in price? A number of restaurants around the country are doing just this, and very successfully, I might

add. They find that by offering a choice of portion there is not only less waste, but also less cost. They are also finding that many people who were reluctant to dine out before are now doing so because of the reduced portions and the accompanying reduced prices.

One of the first places to accept my portion choice program was the Camelback Inn at Scottsdale, Arizona. The Inn's managers report that not only has it enabled them to eliminate much of the needless waste of food but it has also enhanced their profit picture by providing clearer guidelines for the purchase and preparation of food.

Billy Martin's Carriage House, and the Sir Walter Raleigh's Inns, both in the Washington area, have introduced smaller portions for smaller prices on several entrees. Both report that the smaller sizes outsell the large ones by two to one.

Just last month, the Sheraton Corporation initiated this program in both of their Washington, D.C. hotel restaurants. The response was overwhelmingly in favor of smaller portions.

While only 19 percent of those who ordered lobster tails wanted two of them for \$13.95, 81 percent preferred one tail for \$8.25.

Sixteen percent ordered a 9-ounce filet mignon for \$10.95, but 84 percent chose a 5-ounce filet for \$6.95.

Thirty-eight percent selected two lamb chops for \$9.95, while 62 percent had one chop for \$6.50.

The tabulations also showed that while more of the smaller portions were being sold, the sale of appetizers and desserts increased. This provides a more balanced diet for diners with less cost, and less waste to the restaurant, with greater satisfaction for both.

Nord Schwiebert, Vice President of the Washington Sheraton Hotels, feels that if there is a very definite consumer demand "... we have to provide it without looking at the bottom line."

The Sheraton Corporation will now try the experiment for three more months. If it is as successful as it has been, then the choice of portion sizes will be expanded to their hotels nationally, and possibly even internationally.

As you can see, a choice of portion size fits in with what consumers want today. Now that more restaurants are moving away from tradition and offering a choice of regular portions at regular prices plus smaller portions at lower prices, it looks like the doggie bag may be on the way out. And the pleasant results are that prices can be reduced, waste can be eliminated, and business will increase as more customers find they can afford to dine out more often because of reduced prices.

I think it is evident that both industry and Government are now facing the very important challenge of meeting the demands and desires of consumers—the challenge of allowing consumers to take part in the decisionmaking processes, and the challenge of providing them with wholesome and reasonably priced food products that are more versatile, easier to prepare, and higher in nutritional value.

I am convinced that these goals can be met with the complete cooperation of all of us involved—a cooperative effort which is finally including consumer input.

May I also, in closing, offer some tips that should be of help to today's consumers?



"TIPS" TO STRENGTHEN YOUR CONSUMER VOICE

1. Be an active member of a local consumer group and/or civic organization, concerned with consumer issues.
2. Don't be intimidated! Speak up and give your point of view based on facts.
3. Actively support your county/State consumer office.
4. Let the appropriate consumer representative at the Federal, State, or local level know your views on specific issues.
5. Keep well informed of appropriate government proposals (Federal, State, and local) affecting you the consumer.
6. Write your news media and commend them for good coverage of consumer issues.
7. Support and write industries or businesses who implement sound consumer policy and procedures—be critical of those who are not consumer-responsive.
8. Use consumer power by using your consumer voice effectively both in the marketplace as well as in government.





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## AGRICULTURAL INPUTS AND PRODUCTIVITY

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## FARM INPUT SITUATION AND OUTLOOK, 1976-77

(By Robert D. Reinsel, Program Leader, Economic Research Service, USDA)

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In contrast to 1973 and 1974, the 1976-77 outlook for most farm inputs holds little suspense, excitement, or attention. The major story is that: (1) manufacturers in general have increased their production capacity, (2) farmers have increased their purchases, (3) prices for most inputs, with the exception of fertilizer, are rising, but rising more slowly. We are back to business as usual. Nevertheless, there are some major points that farmers must consider. These include: (1) the rising cost of farm machinery, (2) higher prices for fuel, (3) the possible loss of some pesticides, and (4) the uncertain situation with respect to nitrogen fertilizer.

While no major shocks are anticipated in the input markets, any significant input risk, when added to the risks in developing commodity price expectations, become major factors in decisionmaking.

As of October 15, 1976, the index of prices received by farmers was at 178, 17 points or 9 percent below a year earlier. However, prices paid by farmers for production items, interest, taxes, and wage rates averaged 5 percent higher. These higher prices and continuing strong demand pushed production expenses higher. For 1976, total farm production expenditures may be up about 5 percent from 1975.

Realized net farm income for the year may average about the same as last year. With this background, I'll turn to specific inputs and highlight some of the major points that could alter the outlook for 1977.

### FARM MACHINERY

Farm machinery demand in 1976 has remained strong. Through August, 4-wheel drive tractors' sales had increased 16 percent and sales of all tractors were about even with the previous year.

Combined sales were up a little over 1 percent, while major increases in cornhead sales placed their cumulative total through August to nearly 16 percent above the January-August level of 1975. Sales of forage harvesters and windrowers were also above their year-earlier levels, while sharp declines in June-August baler sales reversed the upward trend through May in that market.

Manufacturers' production of farm-type wheel tractors through July was over 115,000 units, 4.4 percent greater than 1 year earlier. Shipments through July were over 116,000 units, nearly 2 percent greater than cumulative January-July shipments in 1975. The overall rate of farm machinery production through July of this year exceeded the rate for all of 1975. Inventories of tractors, combines, and hay balers were above their July 1975, levels, while stocks of forage harvesters were lower.

September 15 prices paid for tractors and other self-propelled farm machinery were 10 percent higher than a year earlier and 38 percent higher than in 1974. While the rate of price increases has slowed considerably, the rate of increase remains strong relative to other price indicators.

It seems likely that further price increases, only slightly lower than those of this year, are in store for 1977 if demand remains strong. However, with a somewhat less favorable outlook for farm income, demand could soften and dealers and manufacturers could begin to accumulate larger inventories which could lead to softening of prices later in 1977. Nonetheless, lower interest rates on intermediate term loans could help stimulate demand even with lower crop price and income expectations.

On balance, 1977 looks like a repeat of 1976 with a slight slowdown in sales and perhaps a slower rise in prices.

#### FUEL

While prices of gasoline are up slightly over those paid a year ago, it is difficult to forecast with any certainty its price movement over the next several months. The OPEC countries have been advocating price increases ranging from 0 to 30 percent with 10 to 15 percent being the most common increase discussed. Until OPEC meets in December, we can only estimate that 1977 fuel prices might rise 5 to 10 percent over this year's level. Although earlier in the year it appeared that price and allocation regulations on gasoline would be removed, no action on the issue has been taken to date.

Price and allocation regulations on No. 2 heating oil, diesel fuel, and other middle distillates ended June 30, 1976. Price response to this action is uncertain, but FEA Administrator Zarb assured Congress that FEA would take action if prices for this winter's heating oil rose more than 2 cents per gallon. It seems doubtful that diesel prices will rise by more than 1 or 2 cents per gallon for the remainder of 1976 and early 1977.

LP gas supplies have increased substantially over inventories of a year ago. The American Petroleum Institute reports that inventories at the end of September totaled 95.1 million barrels versus 89.4 million barrels on September 31, 1975. This reflects an increase in inventories of 6½ percent from a year ago, 20 percent since May of 1976. Farmers should continue to keep their LP storage facilities at capacity as a hedge against natural gas shortages and to maintain supplies for crop drying and other needs throughout the winter.

Natural gas continues to be in short supply with interstate pipelines projecting curtailments near 30 percent of requirements for the coming winter heating season. The curtailments will be felt most severely in the East, the Southeast, and the Gulf Coast areas. While, end use purchasers in those areas served by *intrastate* pipelines should experience little difficulty in obtaining supplies, they can expect to pay higher prices for it than last year. Prices received by producers of *intrastate* gas are likely to be in the vicinity of \$1.65 per thousand cubic feet. New contract sales to *interstate* pipelines are down in 1976, while average prices paid to interstate producers increased to an aver-

age of \$1.01 per thousand cubic feet. The higher price in the interstate market is a reflection of an authorization under the FPC's optional pricing procedures, which allows producers to seek new contracts at prices above the national ceiling.

The schedule of price increases for interstate natural gas announced by the FPC has yet to go into effect. These increases would raise the regulated price from 52 cents to \$1.42 per thousand cubic feet for gas from wells producing for interstate commerce since January 1, 1975, and to \$1.01 for gas from wells producing since January 1, 1973. At this point in time deliberations concerning the price rise are still ongoing, and the final decision is pending. Producers may file with the FPC to be considered for the new rates, but must include in their application a clause which provides for refunding any excess payment they receive after a final decision is made as to the legality of the prices.

#### PESTICIDES

Pesticide production for 1976 was up about 10 to 15 percent over last year. Raw material shortages virtually disappeared and the few reported shortages were attributed to inadequate capacity. Herbicide and insecticide production increased about 15 percent. Fungicide production was close to 1975 levels.

While supplies of pesticides were adequate for 1976, the 15 to 20 percent increase in supplies over last year resulted from a 10 to 15 percent increase in production and substantially greater inventory carryover. Insecticide supplies were up about 30 percent over last year. Herbicide supplies were up 15 to 20 percent. Fungicide supplies were close to year earlier levels.

Domestic demand for pesticides in 1976 was up 5 to 10 percent over a year ago. The expansion in corn and cotton acres was the most important factor contributing to increased pesticide use. More wheat acres also added to their demand.

Crop acreages are the most significant factor affecting levels of pesticide use. If 1977 acres are comparable to 1976, insecticide and fungicide use in 1977 should be close to 1976 levels. Herbicide use should be up because of the general trend to use herbicides more intensively.

Prospects are good that supplies of agricultural pesticides will be sufficient for the 1977 crop season at nearly stable prices. Manufacturers of agricultural pesticides are adding to capacity and have some current unused capacity. Manufacturers added about 20 percent to overall pesticide capacity in 1976. In 1977, they expect to add another 20 percent to herbicide capacity and 5 percent to insecticide capacity.

Regulatory actions are becoming an increasingly important factor in assessing the use and availability of pesticides. In recent years, EPA cancellations and suspensions have contributed to significant changes in the use of certain pesticides. Also, for the near future, there are regulatory requirements which may have a considerable effect on the availability and use of certain pesticides.

The EPA action to suspend the production of chlordane and heptachlor for most uses is probably one of the most significant. However, the final fate of chlordane and heptachlor has not been determined.

Cancellation proceedings are now in progress with the possibility of a final decision by the end of the year.

The other significant regulatory action affecting the near future, is the final implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Amended. All aspects of the new act are to be in force by October 1977. By this time all private and commercial applicators must be certified and all pesticides that were registered before 1972 must be reregistered.

The reregistration of pesticide products adds to the uncertainty associated with the availability of certain pesticides. The costs associated with reregistering pesticide products will encourage pesticide manufacturers to drop registrations on certain products. Pesticide producers are unlikely to reregister products with limited uses or products that are not very profitable. As a result, when the law is fully implemented, pesticides for very specialized uses or for uses on minor crops may not be available.

The certification of pesticide applicators will require farmers to make a decision, whether or not, they want to become certified applicators. If they are now using certain restricted use pesticides, certification will be necessary. If he chooses to forego certification, he will be required to use alternative pesticides in his pest control program or have restricted use pesticides applied by a certified custom applicator.

The lack of certification has several implications to farmers. The use of custom applicators to apply pesticides, formerly applied by farmers, could mean higher costs and less timely applications. The use of alternative pesticides could also mean higher costs for pesticide materials and less effectiveness in controlling pests.

#### FERTILIZER

The fertilizer market has been quite dynamic. Significant movements in prices, quantities produced and consumed, production capacities, and inventories have been recorded. The direction, magnitude, and timing of responses of these variables is a strong indication that supply-demand market forces are operative in fertilizer markets.

Increased demand and short supplies in 1973-74 resulted in high prices for fertilizers in 1974 and 1975. These high prices, in turn, acted as a stimulus to further increase production capacity. On the first of January 1976, domestic anhydrous ammonia capacity totaled 18.8 million tons, up 1.3 million over a year earlier. Also, January 1, wet process phosphoric acid capacity amounted to 9 million tons of  $P_2O_5$ , up 30 percent from January 1, 1975. This increased capacity and output, coupled with high inventory levels meant that farmers had more fertilizer at significantly lower prices in the 1975/76 planting season.

During the 1975/76 fertilizer year, farmers delayed purchases of fertilizers. Fertilizer shipments from July 1975 through the end of February 1976, in 15 States where monthly data are available, were off 9 percent from the previous year. Meanwhile, inventories of fertilizer materials accumulated at the manufacturing level, and manufacturers cut prices in order to move the accumulated inventory. In



March and April, shipments increased by 54 and 48 percent over those for March and April 1975. By mid-April 1976, the index of fertilizer prices had dropped 19 percent from the 1975 level, and total shipments for the 15 States through the end of June were 16 percent above the 1975 level.

Data for the 1975/76 crop year show that farmers used record amounts of fertilizer. Gross tonnage consumed was almost 48.9 million tons, about 15 percent higher than comparable 1974/75 totals, and 4 percent above the 1973/74 record of 47.1 million tons. Consumption of nitrogen was up 20 percent,  $P_2O_5$  use increased 16 percent and  $K_2O$  about 17 percent. Use of nitrogen,  $P_2O_5$ , and  $K_2O$  rose 13, 2, and 2 percent above previous record levels.

Increased use seems to be continuing into the 1976/77 fertilizer year. Monthly reports in the 18 States now reporting reveal that fertilizer shipments in July and August were up over 18 percent over the previous year's totals.

Retail fertilizer prices which peaked in April of 1975, are continuing to decline. The average price paid by U.S. farmers for anhydrous ammonia dropped 5 percent from April 15 to October 15, 1976. Also, fall prices of concentrated superphosphate and muriate of potash were down about 8 percent and 2 percent respectively from prices paid during the spring planting season.

With fertilizer production capacities generally up from a year ago and with relatively large inventories still being held at the primary and intermediate production levels, the general outlook for the 1976/77 crop year is that fertilizer supplies will be sufficient to prevent any upward movement in prices and more likely give stimulus to further decline, even in the face of increased fertilizer use. However, in each of the three primary nutrient markets there are circumstances pending which could alter this general outlook. These uncertainties will be mentioned as the 1976/77 outlook for each nutrient is reviewed.

*Nitrogen.*—U.S. anhydrous ammonia production capacity is expected to increase by close to 1 million tons by the end of 1976. In addition, several new plants (5–6) are scheduled to come onstream in 1977, and a few (3–4) existing production facilities will be expanded. In addition, one new ammonia plant in Canada has recently come onstream and two more are scheduled to be operational in 1977. The domestic production capacities for urea, ammonium nitrate, and diammonium phosphate are also expected to be up 9 to 15 percent. Inventories of nitrogen fertilizer material are high and are expected to increase into February 1977. As a result, prices for nitrogenous fertilizers are expected to be lower even with increased levels of use. However, uncertainties in the natural gas industry could alter this picture slightly. Natural gas is an important feedstock in the production of anhydrous ammonia, and most domestic ammonia manufacturers have long-term contracts with natural gas suppliers.

As noted earlier, the Federal Power Commission has announced substantial rate hikes for natural gas moving in interstate markets. As current natural gas contracts expire and are renegotiated, some ammonia producers may find themselves paying significantly more for their primary input. With increased production capacity at home, and in Canada, where supplies of natural gas are plentiful and prices are

lower, some domestic ammonia producers may be caught in a cost-price squeeze resulting in shutdowns of older plants and a reduction in ammonia capacity. Natural gas curtailments could also cut production if an unusually severe winter occurs. However, given current inventories and capacity no shortages should be anticipated.

*Phosphorus.*—While supplies of phosphate rock and phosphate fertilizer materials are plentiful, some market uncertainties exist as the phosphate industry is currently undergoing a period of adjustment and working off accumulated inventories.

Phosphate rock producers, anticipating an increase in the demand for their product because of increases in domestic phosphoric acid production capacity, increased output last year by about 7 percent over 1974 levels. However, quantities of rock sold or used domestically are down 3.7 percent so far this year. Also, the usually strong export market for rock has been off. January through August exports were down about 15 percent from those of the same period last year. Consequently, September 1 inventories of phosphate rock were 55 percent higher than inventories of that date 1 year ago.

With prices for phosphate fertilizers down sharply and generally abundant supplies of  $P_2O_5$  on hand, some phosphoric acid facilities shutdown or slowed production in order to reduce inventory. The production of phosphoric acid, in January through August 1976, was slightly higher than output for the same period 1 year earlier. However, January through August 1976, production levels represents 58 percent of annual capacity, while the 1975 output represented about 67 percent.

*Potassium.*—Although September 1 inventories of  $K_2O$  in the United States and Canada were down about 17 percent from a year ago, U.S. inventories alone with 5 percent higher, while total U.S. and Canadian production capacities have increased since January 1, prices have recently come down and supplies of potash are expected to be sufficient for the 1976/77 crop year although at lower prices.

Demand for potash by U.S. farmers averages between 4.5 and 5 million tons and exports have approximated 800,000 tons of  $K_2O$  annually. Domestic production capacity will be about 3.1 million tons on January 1, 1977, and the United States has, in recent years, imported about 75 percent of its potash needs from Saskatchewan. At present, the Provincial Government is in the process of assuming control of one-half of the potash production capacity in Saskatchewan. The potential effects of the entry of the Provincial Government into the Saskatchewan industry are as yet unknown. But, U.S. manufacturers are seeking new domestic sources of supply and exploring the possibility of importing potash in greater amounts from other world producers.

As of January 1, 1977, combined U.S. and Canadian production capacity will total 11.8 million tons of  $K_2O$  per year. If Canadian price and output levels remain stable, supplies of potash should be more than sufficient to meet the needs of both nations in 1976-77 and on into the future.

## FERTILIZER DEMAND

On the demand side of the fertilizer market it is too early to develop refined estimates of fertilizer use. However, we can anticipate some factors which may be important. The high prices for the current soybean and cotton crops will increase acreage of both next year relative to corn, wheat, and feed grains. But, because the cotton and soybean crops use less fertilizer per acre some cutback in use can be expected.

In addition, fertilizer/crop price ratios have increased because of declining corn and wheat prices and such a change implies that farmers may use less fertilizer per acre. Also, farmers will find little incentive to acquire their fertilizer much before planting time, thus, putting further pressure on fertilizer manufacturers to reduce prices and offer seasonal discounts for early purchases. On the plus side, for demand, application rates are not expected to decline much, if any, and total crop acreage planted should equal the 1975-76 acreage. Thus, we can anticipate fertilizer use equal to or slightly above the current year.

## RURAL AMERICA AND ENVIRONMENTAL QUALITY: ISSUES AND POTENTIAL IMPACTS

(By Lyle P. Schertz, Deputy Administrator, Economic Research Service,  
USDA\*)

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Environmental issues are here to stay. But energy and growth issues are also here to stay. The confluence of these problems causes conflicts: production vs. quality of the environment, urban vs. rural America, and environmentalists vs. energy developers. Involved are divergencies between costs and benefits of individuals and those perceived by society. Over many years our research and information systems have supported private decisionmakers. Now, public decisionmakers need expanded support with biological, physical, and economic research. This support should be equivalent to research support provided in the past for private decisions in U.S. agriculture and public decisions on agricultural policy. Some adjustments have been made. But further reorientation and expansion of our research and related information systems are needed. In this way both environmental and growth aspects of problems can be effectively considered and social, as well as private costs and benefits of alternative decisions can be accurately evaluated.

### ENVIRONMENT IN RURAL AMERICA HAS BECOME EVERYONE'S BUSINESS

*Pollution problems in rural America have both rural and urban roots.*—And the bitter fruits of the pollution in rural America affect all Americans. For example, demands of urban America have led to urban sprawl, strip mining, super highways cutting diagonally across sections of farmland, and unsightly recreation developments. Thus, these demands have led to pollution in rural America.

Responsibilities come closer to the agricultural community, however, as we observe instances of runoff of fertilizer, erosion, sedimentation, and disposal of animal wastes in open streams. Pollution from pesticides is an example of activity in rural America that can affect both rural and urban Americans. If these compounds are improperly used workers, farm operators, rural residents and consumers can be seriously harmed.

In some cases the causes and the effects are so intertwined that responsibilities are difficult to pin down. For example, while farms have been a source of nitrogen and phosphorus found in runoff water, fertilizer runoff from urban developments, as well as sediment from activities such as building construction and roadbuilding, may be major contributors of pollutants of water.

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\*This paper draws freely on a continual exchange with colleagues in the Economic Research Service, other agencies of the U.S. Department of Agriculture and throughout the profession.



Another example relates to the operation of our markets. Profit usually has been the underlying motivation that causes pollution. Decisionmakers—farmers, manufacturers, developers, towns, and cities—operate in a market system in their quest for profits and efforts to minimize costs. But this system often does not reflect the indirect costs of environmental damage or the full benefits of possible alternative ways to produce and consume goods and services. Thus, impetus is given to private decisions which conflict with environmental quality and ignore the spillover effects on the rest of society.

Also, the development and use of energy and the economic growth needed to meet insatiable U.S. and world demand for goods are intertwined with environmental questions. These questions do not recognize rural/urban boundaries.

*Why did people begin to care more?*—There are major reasons why society has been increasingly concerned about environmental issues—to the point of confrontation in some cases.

Land, water, and air were being increasingly polluted—in some cases, to the point that the effects could be easily recognized by lay people for what they were—abuses of the environment and other people in society. The capacity of land, water, and air to assimilate residues without pollution increasingly diminished. Many technologies were developed with limited regard for damage to air, water, and land. There were instances where livestock lots were sited so that wastes flowed into the streams, city dumps were located without regard for sanitation, and in some cases pesticides were sprayed without regard for pollution of streams.

Technologies played their parts, too, in increasing the potential for pollution. For example, an ever increasing number of pesticides were developed, fertilizers became readily available at prices consistent with low-energy prices, and new livestock feeding and disease control techniques made it possible to feed livestock in large units.

Technologies also brought people closer together and, therefore, increased their sensitivity to how others affect the environment. At one time, we as citizens of our communities had only passing concern for the quality of resources in other States and localities. The shrinking of our Nation in terms of transportation and communications expanded our concerns beyond the limits of our neighborhoods because it is elsewhere that we will vacation within the year and elsewhere that we may transfer our residence within the decade.

And then, too, science pinpointed specific examples of pollution and harm to health and the environment, thus increasing our concerns. Other major reasons for the increased concern for the environment are associated with the dramatic increase of the economic values of natural resources such as clean water, productive and esthetic land, and clean air. The increases in value were partially caused by the losses from pollution. But the increased economic values were also the result of larger population, increased incomes, and changes in the ways people use leisure time. Furthermore, the competitive arena for these resources and their products spread across the Nation and, in some instances, the world.

The balance between public goals, for economic growth and those for quality of life shifted somewhat in the 1970's. Environmental

goals began to be advocated apparently without regard for possible tradeoffs in terms of availability of goods and services. This approach may have been sustained for a longer time had energy prices remained low. But the rapid rise in energy prices, escalation of commodity prices, and general inflation caused a closer examination of the costs of achieving environmental goals. The obvious question was asked, "Could a relaxation of environmental quality goals restrain inflation and conserve energy?" In response there has been relaxation, but not abandonment of environmental quality goals.

*Concerns have become institutionalized.*—Until recently, environmental problems were usually considered secondary to other goals and activities for which we had established institutions. For example, the 1971 Annual Report of the Council of Environmental Quality stated:

"Air and water pollution control programs were once the stepchild of health agencies. Solid waste management had no larger image than the local garbage collector and the city dump. Pesticides were considered part of agricultural activity, while radiation was dealt with in the overall context of atomic energy. Increasing noise and the spread of toxic substances through the environment were generally ignored since no agency was responsible. The nature of many of the problems of improper land use especially in critical areas, was largely unrecognized." [1]

But, as we know, this situation has changed dramatically in recent years. Increased public concerns for the country's environment have been institutionalized in a series of legislative acts, organizations, and regulations.

- The National Environmental Policy Act of 1969 created the Council on Environmental Quality (CEQ) and institutionalized "environmental impact statements" for "major Federal actions significantly affecting the quality of the human environment." [2]
- The Office of Environmental Quality was established in 1970 with the Environmental Quality Improvement Act to support the work of the CEQ and to assure that all Federal agencies conducting or supporting public work activities affecting the environment "shall implement the policies established under existing law . . ." [3]
- The Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) were established in 1970. [4]
- The Federal Water Pollution Control Act Amendments of 1972 established the National Commission on Water Quality and dramatically focused policy on specific discharge requirements, with the ultimate goal of eliminating all discharge of pollutants into water by 1985. [5]

Other Federal legislation was approved dealing with air, pesticides, noise, drinking water, coastal zone management, occupational safety, and health.

These institutional and policy changes at the national level are a sign of the growth in importance and the public's recognition of the importance of environmental problems.



Federal activity represents only a part of the Nation's institutionalization of environmental concerns. Such a list does not reflect the actions at the State and local levels where so much of the action is under Federal legislation or where all of the action is in those areas where there is no, or limited, Federal legislation; e.g. strip mine legislation, land use controls, and solid waste management.

Still further, lists of Federal activities do not reflect the role private citizens and private interest groups have come to play.

Rachel Carson's *Silent Spring*, published in 1962, was a landmark work in calling public attention to environmental issues. The changing attitudes of America's youth in the late 1960's caused a tremendous increase in concern for the environment, and that interest has been growing steadily ever since.

The Sierra Club, one of America's pioneer environmental groups saw its membership triple between 1965 and 1970, and has expanded at a rate of 10,000 a year during the 1970's. Other older groups, like the Audubon Society and the National Wildlife Federation have also grown very rapidly over the past decade. Important new environmental groups, like the Friends of the Earth, the Environmental Defense Fund, and the League of Conservation Voters have also sprung up recently.

Other books and periodicals have focused public attitudes. Since *Silent Spring* is the title of one of the many significant books on environmental issues that have been published since Carson's classic. Others are Barry Commoner's *Closing Circle*, Garrett DeBell's *Environmental Handbook* and quite recently, Erik Eckholm's *Losing Ground*. New periodicals include the Rodale Press's "Environmental Action Bulletin," the bi-weekly "Man Not Apart," and the monthly "Environment."

In totality, and in many cases individually, these activities at the nation, State, and local levels clearly demonstrate that the environment and the interrelations between what happens on farms and in rural America in terms of the environment are the concern of other people in rural America and in urban America. Further, it demonstrates that the people being ultimately affected, or their spokesmen, now have a major voice in policies and programs affecting these practices. The policies and programs are no longer the stepchildren of the institutions peopled by agriculturalists.

Hindsight suggests that the agricultural community with its long tradition of conservation, which included vigorous efforts to conserve soil and water, could have dealt more aggressively with pollution generated in rural America. Such an approach might have retained more of the related programs in institutions aligned with rural America. However, the institutional arrangements are not likely to be reversed. The challenge to rural Americans is to accept these activities as legitimate concerns of society, to make adjustments to modify pollution when its effects are serious, and to avoid panic when they are not. And above all, to have the wisdom to know the difference.

The expansion of environmentally related institutions is directly associated with (1) the divergencies between private and social benefits and costs, and (2) the public's increasing sensitivity and concern for those benefits and costs that are not reflected in private transactions.

Decisionmakers in these institutions must deal with these divergencies. They need research and information support equivalent in quality and quantity to the support that the Federal and State governments have traditionally provided for private decisions in U.S. agriculture and public decisions on agricultural policy. Such support will require reorientation and expansion of research efforts.

#### RURAL AMERICA HASN'T FELT THE ENVIRONMENTAL CRUNCH—YET

To date, production in rural America has not been restrained substantially by environmental initiatives. Several factors account for this limited effect.

*The most obvious problems were given priority.*—For example, attention was focused on DDT and its persistence, feedlot runoff, and agricultural processing wastes, such as that from poultry processing plants. The economic advantages of continuing to pollute in these traditional ways were already diminishing.

DDT for many years was a principal pesticide used in cotton production. However, at the time it was banned many cotton pests were developing resistance to it and its use was declining. This decline was accelerated with the availability of substitute chemicals.

Large feedlots were obvious polluting enterprises. The sheer volume of waste had already prompted the operators to consider improved techniques for handling it. Many had already anticipated the pollution problems and had built the necessary equipment. Further, there were substantial economies of scale for this equipment and the average and marginal costs in terms of animal units for large feedlots were relatively low.

Efforts to deal with point sources of rural wastes, such as food processing plants, have often involved the utilization of "user charges" to encourage improvements in the quality of water and better management of wastes. A study of a poultry processing plant points up how economic incentive programs in a dynamic setting have increased efficiency while reducing pollution. For example, technical changes made in the handling of water and the management of wastes in this plant in southeastern United States resulted in a one-third reduction in water use and a two-thirds reduction in daily waste load. [6]

*Discretion was used.*—In many cases, regulations and incentives were imposed in situations where alternative techniques of production that were less destructive of the environment were available and utilized at the time the regulations were imposed.

For example, original EPA proposals on feedlot waste handling called for restraints on all feeding operations. But in the end EPA regulations are applicable only to those feedlots having a capacity of at least 1,000 animal units or feedlots with a capacity of 300 animal units or more that are discharging or have a high potential for discharging wastes. Thus, only a relatively small number of feedlots are being affected.

To date only a few pesticides have been eliminated from agricultural use and at the national level the impacts have been limited. For example, though the use of DDT was banned for general agricultural use, the ban had only limited effects on production.

*Many programs have not yet been implemented.*—This is the case even though the planning of many of these environmental improvement programs has generated considerable publicity.

Of the 400 to 500 active pesticide ingredients used in agriculture over the past 5 to 10 years, only a few have had a majority of their uses restricted—they include DDT, aldrin, dieldrin, and mercury. Chlordane and heptachlor are under litigation. Lesser restrictions have been prescribed for a limited number of others. Initial concerns focused on the persistence of some pesticides in the environment and their effect on aquatic species and the reproductive ability of some animals. This concern is still prominent, but has taken a backseat to the concern for possible links between pesticides and cancer. As a result of this concern, steps are now being taken which may lead to limiting the use of additional pesticides.

Control of nonpoint pollution has not yet been implemented. However, there has been considerable planning.

Given the limited effects of environmental cleanup efforts on production in rural America, it seems reasonable to speculate that over the past 4 years the effects on agriculture and rural industries of higher costs of energy and other input costs have been much greater than the effects of environmental improvement programs.

#### THE FUTURE WILL INVOLVE TRADEOFFS—ENVIRONMENT, ENERGY, GROWTH

*Energy and growth are important too.*—Environmental quality issues are here to stay but they will increasingly be intertwined with the issues of energy and growth.

Environmental issues will not disappear—today's society will not revert to the attitudes of indifference toward that which prevailed two decades ago. The increased economic value of clean air and water, health, and esthetic use of land will not permit this type of adjustment.

At the same time, the higher costs of energy, our need for more jobs, and concern for inflation will not permit our society to demand environmental improvement without regard for cost.

Increasingly then, environmental, energy, and growth questions will be confronted in a context of tradeoffs among these legitimate objectives of society.

*Effects will depend on policies and programs selected.*—The specific effects to be eventually experienced in rural America will be heavily dependent on the combination of environmental, energy and growth policies and programs pursued at the Federal, State, and local levels.

Some ERS research illustrates the tradeoffs among objectives and how the specific manner in which environmental programs are implemented can greatly affect the impacts on these objectives. (This research has heavily depended on the cooperation of other USDA agencies and U.S. universities.)

One of our estimates of the possible effects of banning the use of chlordane and heptachlor on U.S. corn crops indicate that annual production costs would increase \$9.4 million and yields for "users" would fall by a value of \$60 million, but corn prices would increase for all

producers and the total value of U.S. corn production would rise by \$70 million. [7]

These estimates did assume that alternative pesticides such as carbaryl bait and toxaphene would be available for control of cutworms.

In the future, the impact of banning specific pesticides could increase substantially since fewer alternative pesticides will be available for use. This is already happening. In the case of both the chlor-dane/heptachlor suspension and the DDT ban for agricultural uses, toxaphene was a major alternative—but the use of toxaphene is now being questioned.

If the chlorinated hydrocarbons are lost, basically only the organophosphates and carbamates remain as alternatives. Carbaryl, one of the carbamates, is under investigation and many of the more effective organophosphates are highly lethal—presenting hazards to applicators, workers, and nontarget species. Thus, the result of banning several pesticides, especially substitute pesticides, will result in other impacts until economically and more environmentally acceptable substitute pest control techniques can be developed and put into use.

Programs to cope with nonpoint problems could substantially affect rural America. Pursuant to section 208 of Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972, governmental activity has focused on planning area-wide waste management systems in metropolitan areas. More recently, planning under this act has commenced in rural areas. There the orientation has increasingly become nonpoint-pollution oriented and has focused on area-wide planning and waste management. The impact of the planning has been limited thus far, but the possible effects of prospective programs are considerable.

However, the prospective situation is not clear. Regulating of nonpoint pollution will be extremely difficult if the rules are restrictive. Administrative problems will be much greater than they are with point-source pollution. Thus, society may have to depend heavily on education and incentives rather than regulations. And, since use of incentives could be extremely expensive, society may have to settle for second or even third best approaches to these problems.

The prospective conflicts over nonpoint pollution are likely to be substantial and will probably lead to: (1) Substantial disagreement over the extent to which nonpoint pollution should be controlled, and over the effectiveness of alternative cultural practices and their costs, and (2) vigorous debates on who should bear these costs—producers or society as a whole.

There is a major role for research in this area to quantify the resource, production, economic, and environmental tradeoffs involved with alternative policy approaches. More needs to be known about the technical relationships, especially those which relate environment, production, and energy, and about economic relationships such as costs, interregional shifts, and nonfarm, agribusiness, and community effects. Estimates based on the best information and research available suggest that the needs are great and the stakes are big.

The need to develop the best information possible on the effects of available pesticides and the need for new research are apparent. The Department has responded to these needs with the establishment of



the National Agricultural Pesticide Assessment Program. The program is designed to bring together the expertise in USDA, the land grant colleges and universities, State departments of agriculture, and industry to develop the best information possible to support informed decisions by EPA on the use of pesticides. The program concentrates on compiling and analyzing information that is currently available on pesticides that may be subjected to restrictive actions. It also provides support for limited, new research.

One of the significant challenges for the program will be to utilize past research. This research was largely focused on efficacy in controlling pests. This work relates to evaluation of potential exposure, risks to man and the environment, and to costs of production. In the assessment program, however, a major emphasis will be on answering questions such as: What would be the differences between crop yields under field conditions with or without the use of a selected pesticide? This type of estimate will be needed for States, regions, and the country as a whole. And the analysis will need to consider not only the direct impacts on, say, region A's yield of corn, but the inter-regional effects of these changes on crop and production patterns in region A, plus other regions of the country. Only by developing such information in this way will the program be successful in dealing with the divergencies between private and social costs and benefits.

Reducing the amount of sediment, related nutrients, and pesticides washed from lands into rivers, lakes, and reservoirs will certainly benefit water quality. However, the benefits received are not without costs. A recent cooperative ERS-Iowa State University study of a 1-million acre subbasin indicated if the erosion rate could be limited to 3 tons/acre/year, the sediment delivered to a nearby reservoir would drop 90 percent.

However, substantial changes in production would also occur. There would be: Significant shifts in the location of row crop production; terracing of a large portion of the productive soils; less intensive use of crop rotations, a general change from conventional to minimum tillage; an increase in variable farm production costs of as much as 17 percent. In turn, the tradeoffs between less sediment in water and possible reductions of agricultural production must be identified and evaluated if public officials are to make prudent choices among alternative policies and programs. [8]

Another study focused on the Nation as a whole. It included a 1985 scenario limiting farm erosion to 1 to 5 tons per acre—levels judged necessary to maintain long-term productivity of soils and achieve water quality standards. This scenario, compared to continuation of present environmental policies and programs, would call for an additional 30 million acres of harvested and fallow land to meet 1985 economic demands. And farm production expenditures would be as much as 4 percent higher. One of the tradeoffs for these costs would be a reduction of average gross erosion per acre of cropland from 4.1 tons per acre, the present yearly average, to 1.6 tons. [9]

In a larger context of environmental improvements throughout our economy, the Council on Environmental Quality estimates that the current Consumer Price Index is 1.6 percent above what it would be in the absence of pollution control. The CEQ study indicates that this

difference is expected to increase to 4 percent by 1983. [10] But in a tradeoff context, these estimates are based on implicit or explicit assumptions about certain policy and program choices. Further, they incorporate biological, technical, and economic relationships that in many cases are sheer guesses, unsupported with adequate research. The estimates should not be accepted without careful review. Research on the more important relationships is warranted and greatly needed.

These and other studies illustrate the complexities of anticipating the effects of environmental programs and the need for research that will assist policymakers in understanding the biological, technical, and economic relationships important to policy choices. These studies suggest that stringent environmental controls would mean substantially higher input costs for agricultural production, and lower yields for many crops such as corn, other grains, fruits, and vegetables. Overall effects on variables such as prices would be much less dramatic. Several relationships are involved. Producers would adjust to prices and regional shifts in production might occur.

The preceding has focused on national effects of environmental controls. Regional and individual producer effects will vary as environmental controls will have major adverse impacts on some farms and in some farming areas. On the other hand, they will favor other farms. Most studies indicate that small farms have a higher per unit cost of complying with regulations such as environmental controls, and in making technical changes. Some farming areas have higher costs due to climate and soil factors that may increase pollution abatement costs, in some instances, reduce production efficiency.

While national effects and tradeoffs will be heavily considered in major environmental decisions, politics simply requires that different regional and individual producer effects also be considered.

Land use issues illustrate the intermingling of environmental, energy, and growth issues, as well as divergencies between private and social benefits and costs. Here are some samples.

- Should coal be stripped in areas where the land is highly productive for agricultural purposes? What if the land has low rainfall and only limited agricultural productivity? Should the public decision be the same when mineable coal is available at prices above coal from strip mines?
- Should power generating plants be located in productive agricultural land areas to provide power for industry and agribusiness that in turn are important in providing employment for urban and rural people and farm people working off the farm?
- To what extent should urban sprawl be permitted when it means more energy consumption and less agriculturally productive land?

Research cannot answer these issues directly. Instead, it can provide information on the tradeoffs so that policymakers can, in fact, realize the implications of their choices.

#### INFORMATION AND RESEARCH NEED TO BE REORIENTED AND EXPANDED

*Internalization will help.*—Economists favor internalizing costs and benefits so that producers and consumers consider society as a whole when they make their private decisions. They are correct and shifts in



this direction would ease regulatory problems and reduce environmental degradation. However, even the most optimistic shifts in these directions will leave wide gaps between the benefits and costs which private firms take into account in their decisions, and those which society as a whole will insist be taken into account in policy and program decisions by Government officials. Thus, we can anticipate that many production, distribution, and consumption decisions will be made by public institutions. These decisions will, to varying degrees, take into account the multiple objectives of society and will most certainly restrain private actions.

*Different information and research are needed.*—The types of policy and program decisions call, however, for different information and research than that envisioned when the major statistical series and institutional arrangements for rural America were organized.

As pointed out above, our systems have been organized largely to provide information for private decisionmakers. In turn, they have focused on how to optimize private yields, production, costs, and returns in some cases without regard to social costs and benefits.

Limited but significant information and research have appropriately supported public policy decisionmaking dealing with food price and farm income policies. More research attention to these policies is needed.

The need for research to support the many other public policy and program questions dealing with environment and energy in the context of economic growth has also become increasingly important. For example, production research needs to focus more on questions which transcend the traditional questions addressed in the laboratories and the experimental plots. One of the important questions on pesticides, for example, is: What are the expected yields and production, under field conditions, with various pesticides, compared with how they would be under the best available pest control alternative? What are the processes by which pesticides reach streams? What are the impacts on biotic life, human health, and fish?

Still another question related to pesticides is: What losses of agricultural products such as grains would be experienced in the marketing system with and without the use of fumigants?

There are other examples of research needs:

- Understanding and quantification of social demands for such things as open space, marshlands, clean water, and for alternative levels of human health risk.
- Understanding and quantification of how changes in production practices affect pollution.
- New technologies for human waste disposal, treatment of urban runoff, solid waste disposal, slow release of nutrients by fertilizers, and waste utilization.
- Economic consideration of new technologies which take into account not only the private costs and benefits, but also the multiple objectives of society.
- Reliable techniques for evaluating relationships between chemicals such as pesticides and risks to human health.
- Additional research on elemental cycles of toxic substances as well as carbon and essential plant nutrients. [11]

- Understanding of ecosystems. [11]
- Interrelationships of pollutants such as sediment, nitrogen, and phosphorus.
- Effects of pollutants on the quality and use of natural resources. For example, the effect of sediment on turbidity and, in turn, on recreation, fish population, and plant growth.
- Environmental interrelationships associated with human settlement patterns. [11]
- Development of a theoretical and conceptual framework to deal with: (1) The divergencies between social and private benefits and costs, and (2) intersectoral relationships and interregional effects of environmentally related public decisions.

A host of different and more timely types of information are needed:

- Up to date information on specific pesticide use by specific crops, quantities applied, timing of applications, and number of applications.
- Crop yield differences by land subclasses.
- Patterns of land and water ownership.
- Accurate information on health problems related to exposure to pesticides.
- More accurate empirical information on the incidence of practices that pollute.
- Levels of pollution. The recently initiated monitoring of surface water quality by the U.S. Geological Survey is an example.

These research and information needs have been perceived and some improvements have occurred. More is required if public decisions are to be prudent and responsive to the multiple objectives of a closely interdependent society.

The environmental issues do not coincide with any one discipline and do not coincide with our organizational entities. This raises complexities and difficulties, for effectively dealing with environmental questions requires interdisciplinary work. Close cooperation within and among universities and USDA agencies is necessary.

These considerations add to the complexities of funding, organizing, and initiating new information gathering and research. But increased complexities cannot be an excuse for not improving our support of public decisionmaking on environmental issues.

It is only with improved research and information that the public and its decisionmakers will comprehend the extent to which private benefits and costs diverge from those of society and will understand the tradeoffs among society's environmental, energy, and production goals.

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## WORLD CLIMATIC CHANGES AND AGRICULTURE—THE ISSUES\*

(By Joseph W. Willett, Director, Foreign Demand and Competition Division, Economic Research Service, USDA. The paper was prepared jointly with William R. Gasser. Mr. Gasser is presently detailed to the Research Directorate, National Defense University, Washington, D.C.)

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I've chosen the title of this presentation as "World Climatic Changes and Agriculture—the Issues." An issue is an unsolved problem, or more precisely according to Webster, "a matter that is in dispute between two or more parties; a point of debate or controversy." That certainly applies to the subject of possible changes in climate and resultant impacts on world agriculture. Much has been written recently about possible future weather patterns that likely will be unfavorable for agriculture. There have been many articles in newspapers and popular magazines. For example, the current issue of the *National Geographic* has an article on "What's Happening to Our Climate." A study on the problem was released by the Central Intelligence Agency early this year, and received much attention.

One hypothesis is that there will be a continuation of the northern hemisphere cooling trend of recent decades, with a resultant loss of arable lands at higher latitudes (because of a shortened growing season) and major shifts in rainfall patterns. Another hypothesis is that a worldwide warming trend, resulting from atmospheric accumulation of carbon dioxide as we burn fossil fuels, is, or soon will be, more than offsetting the cooling trend. Whatever the specific merits of these alternative hypotheses, there appears to be a growing consensus that the climate of major crop-growing areas is likely to become more variable than it has been during the last few decades, with resultant larger year-to-year fluctuations in agricultural output. If these views are correct, there are important implications for United States and world policies and programs with regard to food production and reserves, research on agricultural technology, aid programs, energy, transportation, etc.

### "NORMAL WEATHER"

Most present short-run forecasts and long-term projections of crop production do not incorporate these possible future changes in climate. At the same time, however, projections of the future are increasingly including alternative scenarios, or at least ranges, in recognition of the problem of variability. There has been some criticism of the Department of Agriculture and other organizations such as the Food and Ag-

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\*Most of this paper was presented at a Symposium on Living With Climatic Change, phase II, Reston, Va., Nov. 9, 1976.

riculture Organization of the United Nations for including a phrase such as "assuming normal weather" in the presentation of projections of crop production. The criticism centers on two major points: First, that it is very difficult to find even a small sample of crop seasons in which precipitation and temperature values are within a reasonably narrow range of "normal," and second, that at least in some major grain-producing areas, "normal weather" appears to be associated with higher than average yields. There is also the claim that for some areas the weather for the 30-year period, 1940-1970 (on which present weather "normals" are based) was actually abnormally good, with relatively low variability, when compared with data from a longer time series.

I agree that the term "assuming normal weather" is not very precise. But I don't think that most analysts who use that term are so naive as to assume that weather variables will be precisely at the 30-year "normal" over the extended area and time period covered in the projections. In most cases I believe that the phrase merely is a shorthand way of saying that the researcher has no solid basis for projecting that the weather will be exceptionally good or exceptionally bad over the space-time framework for which he is projecting a crop production estimate. In essence, lacking a better basis for judgment, he is assuming that future weather, including its variability, will be generally such as to keep crop yields near the levels of the recent past, as adjusted for likely changes in technology, inputs, and acreage. For example, in the study on "The World Food Situation and Prospects to 1985", published in December 1974 by the Economic Research Service of the U.S. Department of Agriculture, we made this statement:

Projections of future food production levels, including those in this study, generally rest on the assumption that "normal" weather can be expected to prevail, but policies and programs for expanding food production should recognize the possibility that weather conditions could be either less favorable or more favorable than normal. This underscores the need for flexible world food policies to adapt to changes in conditions and to provide a margin of security against sudden or unexpected changes.

Obviously, we and others who are involved in making forecasts and projections of crop production on a world-wide basis would be delighted to have better forecasts of the future crucial weather variables. In the case of short-run forecasts of crop production such as monthly estimates during a growing season, it would be useful to have probability statements on the likely persistence of some weather factor that has a major impact (favorable or unfavorable) on the growth of a particular crop. For example, if a drought is beginning to have a negative impact on crops in a major agricultural area of the United States or elsewhere in the world, it would be very useful to have a precise probability statement of the likelihood of the drought's persistence for an additional month or two months. Similarly, for making long-term projections of world food production for the next decade or two, a highly desirable alternative to assuming normal weather would be probability statements or the likelihood of change in the central tendency or variability of the weather factors impacting the most on crop production. Unfortunately, at present, meteorologists are hard pressed to maintain a high level of accuracy even in 5-day forecasts, although for many purposes the 30-day forecasts are useful even though their accuracy permits only broad generalizations.



## EFFECTS OF CLIMATIC CHANGE

Let's look now at the conclusions several studies have drawn on the impact on agricultural production of possible changes in climate and its variability. A June 1975 conference in Bellagio, Italy on climatic change and food production, sponsored by the Rockefeller Foundation, looked at the consequences for North American agriculture of an average annual temperature decline of  $1^{\circ}$  C.—probably the maximum decline over the next 20 years even if the cooling trend of recent decades continued.

There has been little research on the effects of climatic change on agriculture and the conferees noted that their comments "constitute extrapolation from limited data and informed conjecture rather than formal conclusions." A  $1^{\circ}$  temperature drop would likely cause a southward shift in the cropping pattern with some substitution of earlier maturing varieties in some areas. They concluded that some possible reduction in yields at latitudes above  $45^{\circ}$  N. would likely be more than compensated for by substantial increases in regions farther south. They also speculated that if the cooler temperatures are accompanied by increased precipitation, as has usually been the case in U.S. agricultural regions, the result would be an additional net increase in crop yields.

If the cooling were accompanied by increased variability from year to year in temperature and rainfall, average crop yields over a period of years also would likely be affected, but the net impact could not be estimated without postulating the nature of the variations. The Bellagio conferees agreed that the increased variability would probably complicate the task of breeding and selecting crop varieties that are best suited to an area. They made the point, however, that "strategies in agricultural science and technology that are designed to optimize the resistance of crops to a wide range of climatic conditions may smooth the variations in crop yields from year to year but will probably result in a reduction in total yield over a period of years."

As I indicated earlier some prominent climatologists believe that a warming trend is beginning and, although the projected rate of increase in temperature is controversial, some believe that a rise of  $1^{\circ}$  to  $2^{\circ}$  C. over the next few decades seems likely if we continue our increasing rate of use of fossil fuels. Such a rise would likely shift some circulation belts and change temperature and distribution patterns, but I am not aware of any studies that have attempted to evaluate the resultant effects on world agriculture.

A Toronto Conference on Living With Climatic Change, in November 1975, discussed climatic scenarios, including a description of the 1933–37 droughts in the United States. A study by The Institute of Ecology (TIE) has taken this one step further in making a first cut estimate of the impact of a repeat of this scenario. Their study, "Impact of Climatic Fluctuations on Major North American Food Crops" looks at four scenarios, including the mid-1930's drought, and estimates what might happen to production of corn, wheat, sorghum, and soybeans in the United States under the assumptions of constant 1975 crop area and constant 1973 technology.

The Institute's calculations suggest that a repeat of the weather conditions of the 1933–36 period, assuming 1973 technology and the



1972-75 average acreage, would result in a 15-20 percent reduction in the overall yield for these four crops, as compared with the 1971-75 average yield. The implied reduction for the individual crops ranges from less than 10 percent for soybeans, 13 percent for wheat, 20 percent for corn, and about one-fourth for sorghum. The sharper drop for sorghum than for any of the other crops at first seems rather surprising in view of its comparatively greater drought resistance. But at least part of the explanation may lie in its concentration in the Great Plains, which were most severely hit by the drought.

There is no question that a repetition of the mid-1930's drought scenario would have a severe impact on U.S. agricultural production. But as the TIE study and others have pointed out, some of the changes in technology over the past 40 years would tend to dampen the adverse effects. Additionally, about two-thirds of the corn and one-fourth of the sorghum produced in the Great Plains today are irrigated. I recognize that irrigation water in the Great Plains only supplements the soil moisture from other sources and that in times of drought, irrigation water demand would greatly exceed the supply. But in the 1930's irrigation was almost nonexistent in this area. Also, grain sorghum was an insignificant component of feed grains during the 1930's, but today is a major feed grain crop. Since sorghum is strongly drought resistant, the growth in its production and use as a feed grain contributes strongly to the drought resistance of feed grains as a whole.

Although the precise estimate of effects on production is debatable, a repetition of a mid-1930's type drought scenario in the United States, or significant changes in climate in other major grain producing countries, or a significant increase in the year-to-year variability of weather over an extended period of years would have major implications for U.S. policies on a number of issues, including for example the so-called "world food gap" and the need for reserves.

We have made some analyses of these problems. Our analysis on grain reserves,<sup>1</sup> for example, assumes that deviations in future world grain production occur randomly, and that the magnitude of variability in grain production will be the same in the future as in recent decades. If these assumptions are incorrect, then our estimate of the level of grain reserves which would be required to meet a given level of annual world grain consumption with a stated probability are incorrect. If the variability in grain production should increase in the future, then a larger level of grain reserves would be required to meet the same degree of confidence in coverage of consumption needs. Moreover, if the process is not random, as we have assumed in our analyses, then it is also likely that there would be a change in the level of reserves needed to achieve the same degree of confidence in coverage.

#### WHAT CAN BE DONE?

Some have suggested that today's policymakers should use Joseph's grain storage program in Egypt, as detailed in the Book of Genesis, as a model to stabilize supplies. But Joseph got his estimate of future

<sup>1</sup> *The World Food Situation and Prospects to 1985*. Economic Research Service, USDA. Foreign Agricultural Economic Report No. 98, pages 40-47; and David Eaton and W. Scott Steele, "A Method to Size World Grain Reserves: Initial Results," *Analyses of Grain Reserves, A Proceedings*, ERS-634, pp. 39-55.

weather from an unambiguous message from the highest and most reliable authority. Unfortunately, our policy planners can't be as sure as Joseph was that they have infallible estimates. In fact some one has remarked that the controversy and conflicting opinions on the issue of climatic change brings to mind another biblical story from Genesis, chapter 11—the story of the building of the Tower of Babel and the confusion of languages.

So what can policymakers and planners do when confronted with the confusion of this modern day Babel. One way is to ignore the issues and hope they'll go away. But the present world situation is such that protesting voices will continue to be heard, and the policymaker will continue to have the uncomfortable feeling that these voices may be right. Or the planner might plead agnosticism—that the “truth” isn't known or knowable. That approach might be psychologically appealing but it provides no guide to action which may be warranted. Or those in authority might insist that “science” tell us—that they'll accept only “scientific” proof. But the very fact that there is this controversy indicates that science doesn't know with certainty. Research may help in the future but we need the best possible answer now. This situation need not dismay us. It is, of course, representative of most, if not all, private and public situations—that decisions must be made on the basis of less-than-perfect information.

Surely the best solution is for those in a position to make or influence decisions to “listen” to the experts—a plea that many of the experts have been making. But then the experts will have an obligation to speak in more than the vague generalities that at one time might have been appropriate to create awareness of the problems. What is needed now are expert judgment forecasts—subjective though they may be—on some of the controversial issues relating to possible changes in climate and its variability and how they might impact on agriculture or other sectors of the economy. John Perry, chairman of the Committee on Paleoclimatology and Climate Change of the American Meteorological Society (AMS), wrote in the February issue of the AMS Bulletin:

Since predictions of climate fluctuations are likely to be probabilistic at best, means to utilize this imprecise information in decisionmaking processes should be developed, and steps should be considered to reduce the sensitivity of human activities, such as food production and distribution, to climate fluctuations.

I also remember reading a comment by Dr. Helmut Landsberg to the effect that “one does not have to have absolute certainty (on an issue), but one needs to give the decisionmakers a precise estimate of the uncertainty.”

I want to emphasize this point. For example, it is not useful to tell a policymaker that since some unfavorable event *has* happened in the past it *can* happen again. An informed, expert judgment (again, subjective though it may have to be) on the likelihood or the odds for a repetition of the event would be useful. The decisionmaker then has a basis to weigh the costs and benefits against the risks of alternative policies.

Within the Department of Agriculture we are continuing our statistical analysis of crop yields, particularly grains, around the world,

including measurement of trends, variances, bunchiness, and patterns (both time and geographic). Unfortunately, our yield series for foreign countries cover only the period since the early 1950's (and in some cases later). If, as some claim, weather conditions were exceptionally favorable and stable not only in the United States but elsewhere in the world during much of this period, then our yield analysis would not show this improved pattern. Therefore, a year or so ago we initiated a small contract with at the Department of Atmospheric Sciences at the University of Missouri to assemble a meteorological data base for major agricultural regions of the world and carry out some statistical analyses of the data. Appraisals will be made of the occurrence of favorable or unfavorable weather during the same year for different crop production areas of the world. We will try to determine whether meteorological phenomena show discernible nonrandom relationships, for example, consistent trends or variabilities, in time and space.

#### NDU PROJECT

The Department of Agriculture is participating in a research project now underway at the National Defense University at Fort McNair, to look at some of these problems. The project is a joint effort of the National Defense University's Research Directorate, the Department of Agriculture, the Department of Defense, and the National Oceanic and Atmospheric Administration. In detailed consultation with the experts, we hope to better define the best judgments of the probabilities of changes in climate and its variability and the resultant effects on United States and world food production and on related areas affecting national policy to the year 2000.

Having identified principal geographic regions of interest, particularly the marginal or highly variable areas for agriculture, we hope to be able to better define some key trends (and measures of variability about those trends) for selected climatic variables such as temperature and precipitation. We are developing a set of questions dealing with the significant climatic trends and variability for the selected regions. We will talk with the experts and elicit from them their qualitative judgements and quantitative (probability) estimates on these issues of climatic change or fluctuation and interannual variability. Also, in consultation with experts we will draw upon and perhaps expand on the work of other groups such as The Institute of Ecology in getting judgments relative to the impact of climatic change and variability on yields of principal crops by time periods and by region.

Within the time and resource limitations of this project, we will begin to outline and evaluate a range of policy options for coping with the consequences of climatic change and variability. Such scenarios would help define a range of national policy issues (such as level of food reserves, agricultural land use, foreign aid, economic interdependencies, etc.) that might have to be confronted by policymakers in response to possible changes in climate and food production.

## THE FARM FINANCIAL OUTLOOK FOR 1977

(By Philip T. Allen, Agricultural Economist, Economic Research Service, USDA)

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To monitor the financial pulse of agriculture what do we look at? Probably the most important are farm incomes this year and the expectations for next year. Next in importance are the price tags the market places on the farm production assets—the land, machinery and livestock. If these assets are rising in price they provide additional security for loans in case of shortfalls in incomes, and encourage investors to bid for the assets because of hopes of further appreciation.

The financial health of the farm sector is also related to the condition of the lenders supplying the loan funds. Included is the availability of farm loans, interest rates charged, and the willingness to lend in the face of rising risks.

Finally, one should look at changes in the firms that constitute the farming sector and try to evaluate these firms in terms of their financial stability and growth prospects.

### *Farm incomes—1976 and later*

1976 has been a relatively good year for both farmers and their lenders, with the major exceptions of many livestock producers, and producers in areas suffering from drought. Despite large fluctuations that have occurred during the year, farm incomes are expected to average about the same as in 1975. Compared with 1975, the gain in the value of farm receipts this year has about balanced the further, though moderating, rise in production expenditures. Farm prices and receipts in the year have been hurt by the continued large sell-off of cattle herds. This situation will probably start to change in 1977 and begin to provide support to cattle prices and receipts.

### *Balance sheet values of the farming sector, January 1, 1977 and 1978*

Asset values and equities of farm owners throughout the Nation continued to increase in 1976, largely because of increases in real estate values. The forecast for 1977 is for further gains in assets and equities at a somewhat slower rate than occurred in 1976. The value of farm assets is expected to reach \$634 billion by the end of 1976, a gain of \$49 billion during the year, not as large as the 1975 increase of \$65 billion. In 1976 the rate of increase in farmland values slowed, and livestock inventory values declined in contrast to the large gain during 1975.



The large appreciation in farm asset values, especially since 1971, is one of the reasons for the healthy financial situation of many farmers (figure 1). Actually, since 1954 farmland (the major asset) has been rising in value each year, and the rate of increase in recent years has usually been greater than the rise in the general price level. These higher valued assets are frequently used by landowners to obtain additional financing; and the continued rise in values has encouraged lenders to provide additional loan funds. These gains have been accompanied by similar gains in farm debt so that the ratio of debt to assets has remained rather stable in these years of high farm incomes and prices. While the overall average—at 16 percent—is considered as favorable there are of course some farmers who have no debts at all, and some that have very large debts. Numbers who are heavily in debt are not known but the scattered available evidence indicates that the number has not been changing appreciably in recent years. It can be reasoned that farm lenders, and real estate owners desiring to sell their farmland want to deal with borrowers (purchasers) who can handle the investment with only minimal chance of default. Currently, with relatively few units of farm real estate up for purchase and strong competition among prospective buyers, the new buyers selected will likely be ones with good prospects of financial success.

#### FARM REAL ESTATE VALUES

Farm real estate values are expected to increase 9 percent in the year ending February 1, 1977, according to a group of lenders who were surveyed for this report. ERS forecast a few months ago an 8 to 10 percent increase in the year, similar to the expectations of the lenders. An ERS projection indicates a rise during 1977 (February 1, 1977 to February 1, 1978) of 7 percent.<sup>1</sup> The lenders indicated a belief that the North Central States, where many of the cash grain farms of the Nation are located, would continue to lead the land price advance. Cotton producing regions should also experience strong increases, while cattle producing areas will probably continue to show slower rates of growth.

Between March 1, 1975 and February 1, 1976, farmland values nationally increased an average of 14 percent, rising from \$354 per acre to \$403. Since 1971 values have doubled (figure 2). Increases have been largest in the North Central and Northern Plains States and least in some of the Western and Southern States.

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<sup>1</sup> The Aggregate Income and Wealth (AIW) Simulator for the farm sector, the basis of this and subsequent forecasts in this statement, was developed by John B. Penson, David A. Lins and C. B. Baker. The model projections are in turn based on forecasted product prices, input costs, and some other variables.

## FARM INCOME AND CAPITAL GAINS

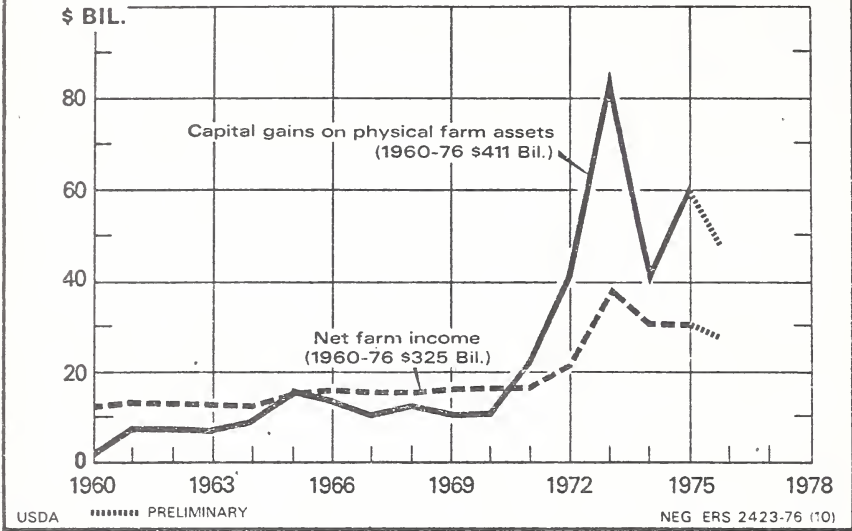
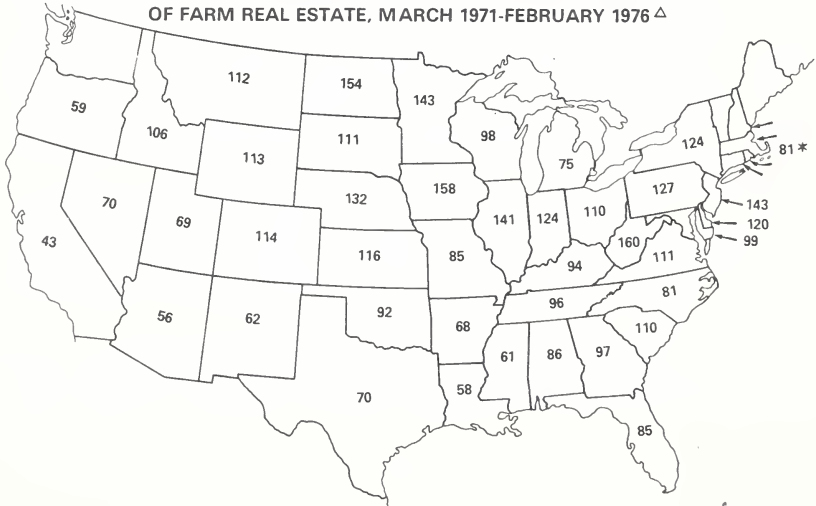


FIGURE 1

## PERCENT CHANGE IN AVERAGE VALUE PER ACRE OF FARM REAL ESTATE, MARCH 1971-FEBRUARY 1976 $\Delta$



$\Delta$  BASED ON INDEX NUMBERS OF AVERAGE VALUE PER ACRE

\* AVERAGE INCREASE FOR MAINE, NEW HAMPSHIRE, VERMONT, MASS., RI AND CONN

FIGURE 2



Farm enlargement is the major reason for purchasing farmland and therefore continues as a significant factor affecting farmland values. Between March 1975 and March 1976, 60 percent of all tracts transferred were for farm enlargement. Regionally, it was most important in the Northern Plains and Corn Belt States where it accounted for 84 percent and 68 percent of total transfers, respectively. The proliferation of part-time farms is another important factor which affects market values, especially in the Northeast and Appalachian States where approximately one-fifth of all transfers are purchased for part-time farming.<sup>2</sup>

#### TYPE OF FARM DIFFERENCES

Among individual farm types, income conditions and prospects varied widely in 1976 and these affected farmland values and farm net worths. Incomes were most favorable for dairy, poultry (except turkeys), cotton and tobacco producers. Wheat producers' incomes reflected large supplies of wheat, lower prices, and rising carryover stocks. Many meat animal producers have continued to experience relatively low net returns and some have had heavy losses. However, with the selloff of cattle herds starting to lessen, this unfavorable situation is expected to start to be corrected in 1977.

Farmland price advances have been largest in the States producing cash grain. The five leading States in the production of corn—Illinois, Indiana, Iowa, Minnesota, Nebraska—had land value increases from 1971 to 1976 of 141 percent. The 5 leading wheat producing States had land value increases of 109 percent. In contrast, States leading in the production of cattle and calves had land value increases in the 5 year period of 93 percent, and those leading in cotton production, 61 percent.

The reporters indicated there was a fairly close relationship between their estimates of changes in net incomes of their borrowers, and their estimates of changes in their borrowers' net worth over the last year—from 1975 to 1976. More than one-half of all cotton, dairy, and cash grain loan customers were reported to have experienced higher gains in net worth—these types also were reported to have the most favorable income changes from 1975 to 1976. Similarly, the farm types with the least favorable income changes—other livestock producers and beef feedlot farmers—had the least favorable net worth changes. Lenders reported that some livestock producers had lower net worth in 1976 than in 1975, even though land values of these types appeared to have continued rising. This probably reflected the heavy and continued losses on cattle sales experienced by many livestock producers during 1976.

#### FARM LENDERS AND FARM LOAN TRENDS

With several sources available to provide the farm loan funds, it is possible for farmer-borrowers to select the sources best suited to their needs. This competition among the lenders is one reason for the innovative type of farm financing that has been developed in this

<sup>2</sup> The several factors affecting farm real estate values are appraised in detail by Larry A. Walker, ERS, in *The Agricultural Banker*, special report, American Bankers Association, October 1976.

country over the years. One rather different source that has become of major importance in recent years is the "seller financing". Many real estate owners have built up large equities in their farm properties—and thus have the capability, and often the desire, to finance the sales of their properties through land contracts or mortgages. This is a sort of self-generating financing system for the farming sector that has in recent years played an important role in supplementing the institutional lenders in financing the transfers of farm real estate from one owner to the next. Another strengthening feature of the farm credit sources is their ability to draw funds from widely different markets—the Farm Credit System largely from national money markets, and commercial banks largely from the deposits of their local customers. Land contracts and seller mortgages are also local funds. The Farmers Home Administration, a Government agency, depends on governmental appropriations and funds obtained from local lenders and the money market, for its loan funds.

An important part of the loan funds provided to farmers is used by them to enlarge the physical size and efficiency, and the income producing capacity, of their individual farming units. As noted in the discussion on farmland values, this trend toward farm enlargement has been going on for years. Operators with potential for higher returns continue to bid strongly for land and other resources. This farm enlargement process needs to be financed along with the needs to finance current operating expenditures.

*Total farm debt.*—Total farm debt outstanding is expected to reach \$102 billion by the end of 1976, an increase of about \$11 billion during the year (table 1). This rise was \$2 billion more than in 1975 with both real estate and nonreal estate debt rising more rapidly (figure 3).

*Farm real estate debt.*—The most striking change during 1976 in farm real estate lending has been the increase in lending by the life insurance companies. Life insurance companies are estimated to increase their holdings of farm real estate loans by about \$1 billion or 16 percent in 1976—compared with a gain of \$0.2 billion, or 4 percent, in 1975. Our discussants here today will be able to tell us more about the immediate and longer run significance of this development. With this change, the rather persistent taking over of the farm real estate lending business by the Federal land banks was slowed (refer to table 2). Loans funded by sellers of farmland—under land contract or mortgage—apparently rose less rapidly during 1976 than loans of most other lender groups. The likely reason for the smaller growth of this group is the ready availability of loans from life insurance companies, the Federal land banks, and the other institutional lender sources.

*Nonreal estate lending* in 1976 was characterized by a little more active role of individuals and others, largely the merchant and dealers who apparently used credit availability as a sales device during this year of more competitive markets. The credit subsidiaries of the six full line farm machinery manufacturers reported their outstanding loan volume to finance retail sales of farm machinery jumped 27 percent during 1975, and was expected to rise 22 percent this year. Both banks and the production credit associations are estimated to have increased their loans more rapidly than during 1975 (table 3).

Finally, interest rates have eased a little this year but little further change is expected next year (figures 4 and 5).

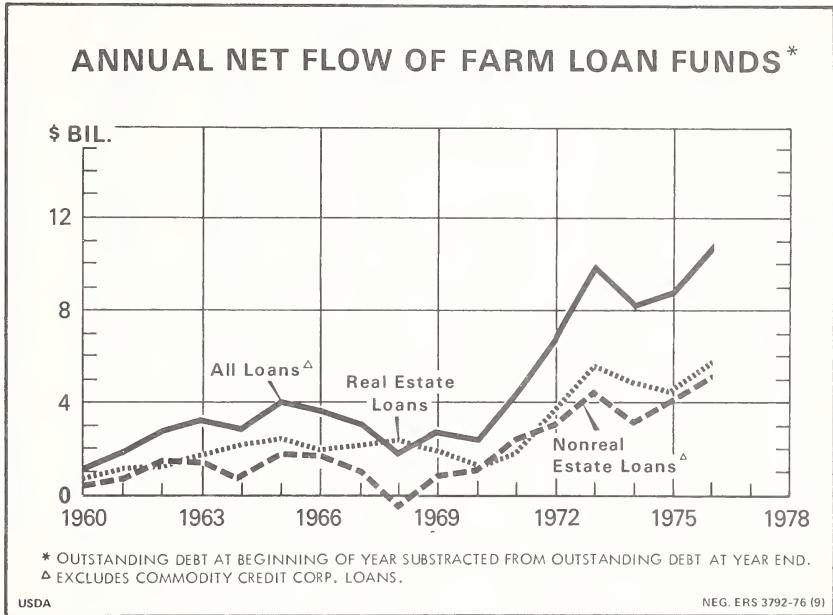


FIGURE 3

TABLE 1.—TOTAL FARM DEBT OUTSTANDING JAN. 1, SELECTED YEARS, 1973-77

Year	Real estate debt	Nonreal estate debt excluding CCC loans	Price support and storage loans made or guaranteed by CCC	Total excluding CCC loans	Total including CCC loans
Million dollars					
1973.....	35,758	27,794	1,793	63,552	65,345
1974.....	41,253	32,134	750	73,387	74,137
1975.....	46,288	35,226	319	81,514	81,833
1976.....	50,876	39,406	358	90,282	90,640
1977 <sup>1</sup> .....	56,690	44,420	467	101,110	101,577
Dollar change					
1972-73.....	3,550	3,150	-469	6,700	6,231
1973-74.....	5,495	4,340	-1,043	9,835	8,792
1974-75.....	5,035	3,092	-431	8,127	7,696
1975-76.....	4,588	4,180	39	8,768	8,807
1976-77.....	5,814	5,014	109	10,828	10,937
Percent change					
1972-73.....	11.0	12.8	-20.7	11.8	10.5
1973-74.....	15.4	15.6	-58.2	15.5	13.5
1974-75.....	12.2	9.6	42.5	11.1	10.4
1975-76.....	9.9	11.9	12.2	10.8	10.8
1976-77.....	11.4	12.7	30.4	12.0	12.1
Percentage distribution of debt					
1973.....	54.7	42.5	2.8	-----	100.0
1974.....	55.7	43.3	1.0	-----	100.0
1975.....	56.6	43.0	.4	-----	100.0
1976.....	56.1	43.5	.4	-----	100.0
1977.....	55.8	43.7	.5	-----	100.0

<sup>1</sup> Preliminary.

TABLE 2.—REAL ESTATE FARM DEBT OUTSTANDING JAN. 1, SELECTED YEARS, 1973-77

Year	Federal land banks	Farmers Home Administration	Life insurance companies	Commercial banks	Individuals and others	Total
Million dollars						
1973.....	9,050	2,835	5,643	4,792	13,437	35,580
1974.....	10,901	3,013	5,965	5,458	15,915	41,253
1975.....	13,402	3,215	6,297	5,966	17,408	46,288
1976.....	15,950	3,369	6,533	6,296	18,728	50,876
1977 <sup>1</sup> .....	18,710	3,660	7,550	6,870	19,900	56,690
Dollar change						
1972-73.....	1,170	217	79	574	1,510	3,550
1973-74.....	1,851	178	322	666	2,478	5,495
1974-75.....	2,501	202	332	508	1,493	5,035
1975-76.....	2,548	154	236	330	1,320	4,588
1976-77.....	2,760	291	1,017	574	1,172	5,814
Percent change						
1972-73.....	14.8	8.3	1.4	13.6	12.7	11.0
1973-74.....	20.4	6.3	5.7	13.9	18.4	15.4
1974-75.....	22.9	6.7	5.6	9.3	9.4	12.2
1975-76.....	19.0	4.8	3.7	5.5	7.6	9.9
1976-77.....	17.3	8.6	15.6	9.1	6.3	11.4
Percentage distribution of debt						
1973.....	25.3	7.9	15.8	13.4	37.6	100.0
1974.....	26.4	7.3	14.5	13.2	38.6	100.0
1975.....	29.0	6.9	13.6	12.9	37.6	100.0
1976.....	31.4	6.6	12.8	12.4	36.8	100.0
1977.....	33.0	6.5	13.3	12.1	35.1	100.0

<sup>1</sup> Preliminary.

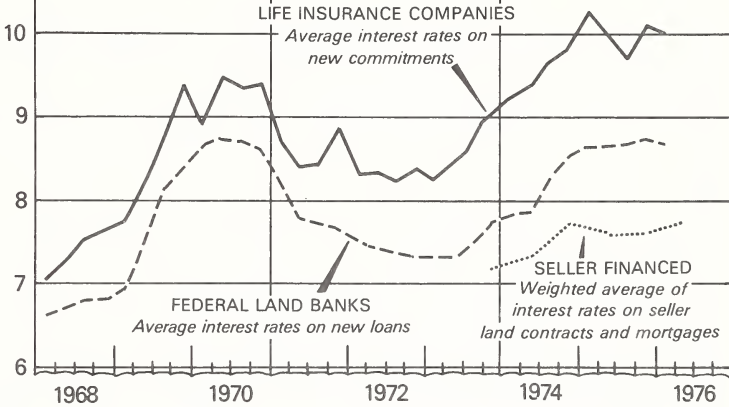
TABLE 3.—NONREAL ESTATE FARM DEBT OUTSTANDING, JAN. 1, SELECTED YEARS, 1973-77

Debt owed to reporting institutions (excluding CCC)								
Year	All operating banks	Production credit associations	Federal intermediate credit banks <sup>1</sup>	Farmers Home Administration	Total	Debts owed to individuals and others	Total excluding CCC loans	Price support and storage loans made or guaranteed by CCC
Million dollars								
1973.....	14,315	6,607	251	781	21,954	5,840	27,794	1,793
1974.....	17,167	7,829	331	877	26,204	5,930	32,134	1,750
1975.....	18,238	9,519	374	1,044	29,176	6,050	35,226	319
1976.....	20,160	10,774	350	1,772	33,056	6,350	39,406	358
1977 <sup>1</sup> .....	22,520	12,450	380	2,120	37,470	6,950	44,420	467
Dollar change								
1972-73.....	1,817	529	14	10	2,370	780	3,150	-469
1973-74.....	2,852	1,222	80	96	4,250	90	4,340	-1,043
1974-75.....	1,071	1,690	43	167	2,972	120	3,092	-431
1975-76.....	1,922	1,255	-24	728	3,880	300	4,180	39
1976-77.....	2,360	1,676	30	348	4,414	600	5,014	109
Percent change								
1972-73.....	14.5	8.7	5.9	1.3	12.1	15.4	12.8	-20.7
1973-74.....	19.9	18.5	31.9	12.3	19.4	1.5	15.6	-58.2
1974-75.....	6.2	21.6	13.0	19.0	11.3	2.0	9.6	-57.5
1975-76.....	10.5	13.2	-6.4	69.7	13.3	5.0	11.9	12.2
1976-77.....	11.7	15.6	8.6	19.6	13.4	9.4	12.7	30.4
Percentage distribution of debt								
1973.....	48.4	22.3	0.9	2.6	74.2	19.7	-----	6.1
1974.....	52.2	23.8	1.0	2.7	79.7	18.0	-----	2.3
1975.....	51.3	26.8	1.1	2.9	82.1	17.0	-----	.9
1976.....	50.7	27.1	.9	4.4	83.1	16.0	-----	.9
1977.....	50.2	27.7	.9	4.7	83.5	15.5	-----	1.0

<sup>1</sup> Preliminary.

## INTEREST RATES ON FARM REAL ESTATE LOANS

PERCENT



QUARTERLY DATA FOR LIFE INSURANCE COMPANIES AND FEDERAL LAND BANKS. SEMIANNUAL DATA FOR SELLER FINANCED LOANS.

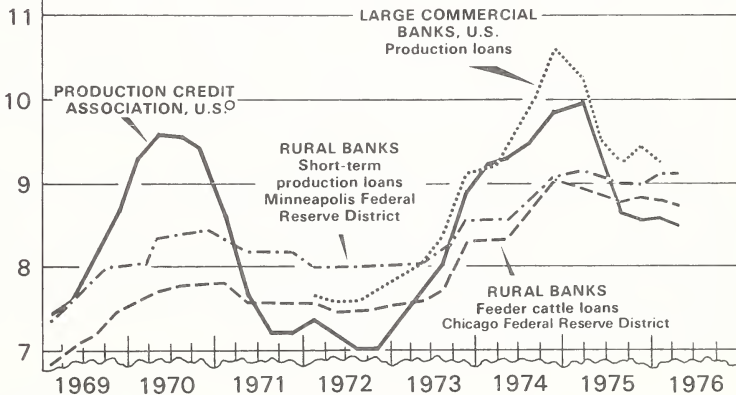
USDA

NEG. ERS 8958-76 (11)

FIGURE 4

## INTEREST RATES ON NONREAL ESTATE FARM LOANS

PERCENT

QUARTERLY DATA  
INCLUDING SERVICE FEE.

USDA

NEG. ERS 569-76 (9)

FIGURE 5



## LENDERS' VIEWS ON FARM LOAN RISKS

Compared with last year, farm loans are riskier investments according to the lenders. Of the bankers surveyed, 37 percent reported greater risks associated with farm lending this year—especially for beef feedlots.

When faced with increased risks, lenders may react in different ways. The most likely responses, judging from past surveys, are to increase security requirements and supervision of farm loans. Survey results indicate security requirements on farm loans have increased this year over last year. Information is not available on whether supervision has been increased; perhaps our discussants can comment on this.

Other lender responses to increased risk include reductions in the amount of farm loans made. However, in the case of commercial banks, an expected increase in deposits of roughly 10 percent in 1976 may more than offset any reduction in loan funds due to increased risks. In addition, steady increases in the value of farm assets have provided additional security to offset the risks associated with increased variability or lower levels of farm income. Therefore, it does not appear that lenders are adjusting to increased risk by reducing the amount of loan funds made available. Nor is there any strong empirical support to show that interest rates have changed due to increased risk. Although lenders believe that farm loans have become more risky, they continue to look upon them as desirable investments.

## FORECASTS FOR 1977 FROM THE AGGREGATIVE INCOME AND WEALTH SIMULATOR

We turn now to specific forecasts for 1977. We will not treat in detail many of the forecasts shown in table 4. They will be considered more fully in the *Agricultural Finance Outlook* report to be published soon. But there are a few items in the table that emphasize some of the points we have been considering. In the first place it is evident that farmers use a large portion of their earnings for investments in farm machinery and other capital assets. In fact the portion of their incomes used for "personal consumption and other uses" has remained rather stable since 1975—but there has been a large increase in the investment items.

The item "purchases of real estate from discontinuing proprietors"—estimated at \$10.5 billion in 1977—is an indication of the investments made for farm enlargement. This figure should be kept in mind when one is looking at the increases in farm debts that have been occurring. Probably a substantial part of the increase in farm debt that is taking place is to provide the farm enlargers with funds to purchase these additional assets and to operate them.

## SUMMARY

Incomes in 1976 are about the same as in 1975, and 1977 incomes are expected to be similar to those of this year.

TABLE 4.—SOURCES AND USES OF FUNDS; AND STOCKS OF ASSETS AND LOANS OUTSTANDING OF THE FARMING SECTOR, 1970, 1975, 1976, AND FORECAST FOR 1977

[In billions of dollars]

	1970	1975	1976	1977
Cash sources of funds from—				
Cash income, farm and off-farm.....	37.5	62.6	66.0	66.2
Net flow of real estate loan funds.....	1.1	4.6	5.8	7.0
Net flow of nonreal estate loan funds.....	1.1	4.2	5.0	4.0
Total cash sources.....	39.7	71.4	76.8	77.2
Cash uses of funds:				
Purchases of machinery and motor vehicles.....	4.9	8.9	9.6	10.0
Capital improvement to real estate assets.....	2.4	3.8	3.8	4.3
Other capital formation.....	1.5	1.3	1.7	1.9
Annual capital formation.....	8.8	14.0	15.1	16.2
Purchases of real estate from discontinuing proprietors.....	3.6	8.2	8.7	10.5
Total cash flow of capital.....	12.4	22.2	23.8	26.7
Personal consumption and other uses.....	27.3	49.2	53.0	50.5
Total cash uses.....	39.7	71.4	76.8	77.2
Stocks of assets and loans outstanding, Dec. 31:				
Real estate assets.....	215.0	422.3	460.3	491.4
Other physical assets.....	70.1	131.4	140.3	154.3
Financial assets.....	23.6	31.7	33.4	33.6
Total farm assets.....	317.7	585.4	634.0	679.3
Real estate debt.....	30.3	50.9	56.7	63.7
Nonreal estate debt.....	22.2	39.4	44.4	48.4
CCC nonrecourse loans.....	1.9	.3	.5	.5
Total debt claims.....	54.4	90.6	101.6	112.6
Equity.....	263.3	494.8	532.4	566.7

Note: For description of this table see Agricultural Finance Outlook (AF0-17).

Loan demands will be strong in 1977, but lenders are expected to be well supplied with funds and apparently are willing to continue to expand their lending activities.

Interest rates have eased very slightly from their recent highs and are not expected to change much during next year.

Farmland values have been rising a little less rapidly in 1976 and some slight further easing is in prospect in 1977. Despite this, farm equities are still likely to rise further during the year, strengthening the incentives of buyers to acquire land and of lenders to make loans.

While the financial situation ahead for farmers looks favorable, a number of uncertainties exist which could cause changes in either direction—toward higher farm prices and incomes, or toward lower ones. These uncertainties include strength of demands in domestic markets for livestock products, and the strength of demand in foreign markets for many of the crop products. The course of the cattle cycle is uncertain, and also the degree of price inflation ahead and the effect on investors' expectations about real estate price trends.

The averages are generally reassuring but there are always groups and situations that are less favorable than the others. Lenders are unanimous in the belief that risks of farm lending are increasing. Investors need to be counseled, if they are not already of that view, to keep their borrowings to limits that would not turn out to be disastrous to their future in farming—and unpleasant for their lenders—if their income expectations turned out to be much too high for an extended period of time.



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## U.S. AGRICULTURE IN THE WORLD

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## AGRICULTURAL TRADE OUTLOOK

(Richard E. Bell, Assistant Secretary of Agriculture for International Affairs and Commodity Programs, USDA)

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The past 7 years has been a period of exceptional growth in U.S. exports of agricultural products. Since 1969, there have been 7 successive years of record U.S. exports of agricultural products.

As you know, Congress has changed the official fiscal year for the U.S. Government. It now begins October 1 rather than July 1.

In the year which ended last September 30, the United States exported a record \$22.8 billion worth of agricultural products. This was four times the \$5.7 billion exported in the year ended September 30, 1969.

The Department of Agriculture expects this record level to be maintained in the current fiscal year ending September 30, 1977. In this period, we presently expect exports of U.S. agricultural products to total \$22.8 billion, equaling last year's record.

The total tonnage of U.S. agricultural exports in fiscal year 1977 may be below that for the past fiscal year, but higher export prices for soybeans, oilseed products, and cotton will offset the decline in overall export tonnage.

The world grain supply in 1976-77 is considerably larger than that of the past several years. World wheat production is about 12 percent higher than this past year, and world coarse grain production is forecast about 6 percent higher. World rice production will be down slightly in 1976-77, after 3 successive record crops. World grain stocks, therefore, are expected to increase substantially—by around 20 percent—during 1976-77.

Demand for U.S. grain in the world market has slackened some from last year's high level, but exports of U.S. grain (including rice) in the 1976-77 marketing year are expected to be maintained at a high level, and probably will be second only to the record 83 million metric tons exported in marketing year 1975-76.

At present, we expect U.S. grain exports (including rice) in 1976-77 to be around 77.5 million metric tons. Although both corn and wheat exports will continue at a high level in 1976-77, exports of corn will be much higher than wheat exports.

Several factors account for the United States continuing a high level of U.S. agricultural exports in fiscal year 1977. European supplies of grain, potatoes, and forage were sharply reduced by last summer's drought. At the same time, demand for livestock products is improving in the major industrialized countries and encouraging the use of more grain and high-protein meals in livestock rations. Economic recovery in both industrialized and developing countries has

enhanced the demand for food as well as the demand for raw materials used in livestock production.

Another factor helping maintain exports of agricultural products at a high level is the continuation of large exports of corn, wheat, and soybeans to the Soviet Union. It now appears that the Soviet grain harvest in 1976 will exceed 220 million metric tons. This is 80 million tons above last year's disastrous crop and could equal or even exceed the record crop of 222 million tons harvested in 1973.

Despite the huge grain harvest in the Soviet Union this year, the Soviets have purchased 8.4 million metric tons of U.S. wheat, corn, and soybeans from our 1976 crops. Purchases include 2.9 million tons of wheat, 4 million tons of corn, and 1.5 million tons of soybeans.

The long-term grain supply agreement concluded between the United States and the Soviet Union in October 1975 is undoubtedly an important factor in the continuation of Soviet purchases of U.S. grain despite a huge crop in the Soviet Union this year. The agreement commits the Soviet Union to purchase a minimum of 6 million metric tons of U.S. wheat and corn—in approximately equal quantities—each year for 5 years irrespective of the size of the Soviet crop. The value of this agreement to American agriculture is apparent. It provides American farmers a continuous, regular market on which they can depend.

Soybeans and oilseed products will be a star performer in 1976-77 as far as exports are concerned. We expect to export \$6.1 billion worth of soybeans and oilseed products in the fiscal year 1977. This will be about \$1.4 billion more than last fiscal year.

A number of factors account for the increased export value of soybeans and oilseeds in the current fiscal year. Predominant among these is the fact that the Soviet Union has purchased 2 million metric tons of soybeans from the world market for delivery in 1976-77, including 1.5 million tons expected to be shipped from the United States. Demand for soybean meal continues strong in many key areas of the world, reflecting improved economic conditions. Uncertainty affecting the production of fishmeal in Peru is also a factor as is the smaller-than-expected sunflower seed crop in the Soviet Union. The 1976 sunflower seed crop may be 5.5 million tons or less—which offers some possibility of further Soviet purchases.

The largest percentage increase in U.S. agricultural exports in the current fiscal year, however, will be in cotton. We presently expect U.S. cotton exports in fiscal year 1977 to be about \$1.6 billion, more than 60 percent above last year. Continued expansion of textile activity abroad, competitive U.S. prices and smaller export availabilities from other exporting countries are all contributing to the current surge in world demand for U.S. cotton.

Combined exports of livestock, dairy, and poultry in fiscal year 1977 are expected to total \$2.3 billion or about the same as in the past fiscal year. The value of tobacco exports will be up again in fiscal year 1977. Exports of fruits, nuts, and vegetables will be up, but only slightly. The heavy rains which hit California in September drastically curtailed export supplies of dried fruit.

U.S. imports of agricultural products are expected to increase around 15 percent in fiscal year 1977. A large part of the increase

will be due to higher priced coffee imports. The agricultural trade surplus in fiscal year 1977 will total around \$11 billion, which will be below the record \$12.3 billion of this past fiscal year.

Western Europe will edge out Asia as the top export market for U.S. agricultural products in fiscal year 1977. We expect exports to Western Europe to amount to \$8 billion compared to \$7.8 billion to Asia. This is expected to be a temporary situation caused by last summer's European drought. Japan will continue as our top single-country market.

#### IMPACT OF GOVERNMENT POLICIES

Although we have had 7 successive years of record U.S. exports of agricultural products, the sharpest growth has been in the past 3 or 4 years. Admittedly, weather-reduced crops in many parts of the world during recent years was an important factor contributing to the surge in exports. This growth in U.S. exports did not just happen. It took a lot of hard work by farmers, exporters and other people involved in export marketing. Government policies in this period also encouraged the sharp growth.

Government policies in this period have been particularly effective at opening and developing new export markets for U.S. farm products. The most dramatic example in this regard, of course, has been the opening of the new markets in the Soviet Union, the other Communist countries in Eastern Europe and the Peoples' Republic of China.

Our gaining access to markets in Communist countries for U.S. farm products in 1971 was a milestone for American agriculture. It opened to American farmers about a third of the world's population which previously had been closed as a potential market for U.S. farm products. The Communist countries take only 10 to 12 percent of our total exports of U.S. agricultural products, but they add an extra dimension of demand which gives impetus to the entire export market.

Domestic farm policies have also been instrumental in helping promote greater exports of U.S. farm products since 1970. Most of the growth in U.S. agricultural exports in recent years has been in the principal field crops—wheat, feed grains, oilseeds and cotton. Since enactment of the Agricultural Act of 1970, domestic farm programs have been designed to permit U.S. wheat, feed grains, most oilseeds and cotton to be priced competitively by private export firms and farmer cooperatives in a free market environment. Loan rates for wheat, feed grains, soybeans and cotton have been set at levels which do not interfere with export pricing. Export subsidies on wheat and rice have been eliminated.

There should be no mistake about it! The market-oriented farm policies of the past 5 years have enabled us to take advantage of export opportunities in world markets. This would not have been possible under the old policies.

It is particularly important that loan rates not be set at levels which interfere with export pricing and which prevent the market from being allowed to work. We are nearing such a situation for wheat.

Wheat prices have been under pressure for some months. This pressure, however, is not caused by a decline in wheat exports. We in the Agriculture Department continue to believe that U.S. wheat exports will exceed a billion bushels in 1976-77 despite intense competition from other exporting countries, particularly from Canada and Argentina.

Wheat prices are under pressure because wheat supplies have accumulated at a time when the world is just beginning to recover from an economic recession and the growing demand for grain for livestock feeding has lost some of the momentum it had before the recession.

Wheat is a food, but it first of all is a grain. When supplies become too large, wheat generally is priced as a feed. This tends to get supplies back in line with effective demand. It is important that loan rates—or other Government measures—not interfere with this adjustment.

It also is important that loan rates and other Government measures not be permitted to distort geographic production patterns. In 1976 we planted about 65 percent more acres of wheat in the United States than in 1970. In fact, in 1976 we planted almost as much wheat as corn.

A large part of the increase in wheat acreage since 1970 is in areas where alternative crops can be grown. For example, wheat acreage in the Corn Belt in 1976 was about 138 percent higher than in 1970. It was 75 percent higher in the spring wheat area.

Both of these areas will grow alternative crops when there is economic incentive to do so. Farmers in these regions will reduce their wheat acreages in 1977. They will plant more feed grains and soybeans, and this adjustment is needed if world demands are to be met. As far as export markets for U.S. farm products are concerned, the big potential still lies in providing raw materials for livestock feeding rather than food for direct consumption.

It is important to resist pressure to tinker with Government policies so as to gain short-term goals. Such tinkering usually leads only to bigger problems. We have a perfect example of this in the Public Law 480 (Food for Peace) program.

Congress has badly crippled Public Law 480 as an effective tool for developing export markets for U.S. farm products. A year ago, Congress amended Public Law 480 to require that in any fiscal year no more than 25 percent of the food assistance provided under Public Law 480, title I, go to countries with per capita gross national products (GNP) of more than \$300. Title I of Public Law 480 permits Government financing of export sales of U.S. farm products to developing countries with long-term, low-interest credit.

Generally, we ship large quantities of food under Public Law 480, title I, to South Asia—Bangladesh, India, Pakistan, and Sri Lanka. Crops in South Asia this past year, however, has been generally good and the need for food assistance is drastically reduced. Food import needs in several countries in North Africa and the Middle East, on the other hand, are greater this year, but we are unable to respond to these needs because these countries have per capita GNP in excess of \$300.

We originally planned to export about 3.8 million tons of wheat under Public Law 480, title I, in fiscal year 1977, and thus far we have



made good progress in moving toward that goal. Although we are only in the second month of the new fiscal year, we already have made commitments for nearly 2 million tons of wheat for shipment under Public Law 480, title I, in fiscal year 1977. But frankly, we now have doubts whether the original goal can be met because of the restraint imposed by the 25 percent requirement, and this comes at a time when U.S. wheat growers need more, not less, wheat exports.

#### WORLD FINANCIAL SITUATION

Forecasting exports of U.S. agricultural products is perhaps more hazardous than usual this year because of the weak financial positions of a number of countries and, in particular, the uncertainty related to a possible increase in petroleum prices by the OPEC (Organization of Petroleum Exporting Countries) at the end of this year. Many economists believe that a substantial increase in petroleum prices at this time would be more dangerous to the world economy in general—and could have a more adverse impact on agricultural exports—than was the case 3 years ago when the OPEC first raised prices.

Since that increase 3 years ago, a number of foreign markets for U.S. agricultural exports have incurred large foreign debts. By and large, this is true of all the nonpetroleum developing countries and several European countries such as Italy, Denmark, and the United Kingdom. Together, these countries take about a third of U.S. farm product exports.

Repayment of some of the debts incurred is now coming due, and most of these countries must take actions to strengthen their external financial positions. Already, Italy, Mexico, and the United Kingdom have depreciated their currencies to improve their competitive positions. Also, these and other countries have tightened their fiscal and monetary policies.

Thus the situation is very different from 3 years ago, when the nonpetroleum developing countries had large reserves of foreign exchange and the developed nations had little or no foreign debt. If OPEC increases the price of oil significantly this December, additional corrective actions almost certainly will be necessary. Other factors aside, exports of U.S. agricultural products could be dampened by these moves.

At the same time, we should view these pressures in their proper perspective. During part of 1975, and to a lesser extent during 1976, world recession placed some downward pressure on exports. In effect then, external financial problems of various nations replace world recession as an economic factor to be considered in forecasting foreign demand for our agricultural products.

#### INTERNATIONAL TRADE POLICY

Another longer term consideration in the future of agricultural trade is the question of international trade policy: What course is the world likely to take in terms of liberalizing or further restricting world trade? This question is being tested in a number of world forums. It involves for the first time major efforts by the developing countries to affect the outcome.

While the United States has more firmly committed itself to market-oriented policies, both at home and abroad, the developing world is

espousing a totally different approach. Those countries, numbering more than 100, have engaged the developed world in what is commonly called the North-South dialogue. A whole range of issues, including commodity policy in particular, is being explored in the United National Conference on Trade and Development (UNCTAD) and in the Conference on International Economic Cooperation (CIEC), the latter in Paris. They have possibly important implications for world trade in agricultural products.

The UNCTAD has proposed a so-called common fund. Its objective would be to improve the earnings of developing countries from commodities by stabilizing commodity prices around a long-term trend, or by raising commodity prices to levels higher than they would otherwise be. Buffer stocks would be created to achieve this objective. As envisaged by UNCTAD, the fund is estimated to need at least \$6 billion, with \$2 billion to be provided by governments and the balance to be raised by international borrowing. International discussions on this fund will begin shortly.

In addition to the discussions on the common fund, the UNCTAD is convening meetings on 14 commodities, most of which are agricultural. They include oils and oilseeds, cotton, meat, jute, hard fibers, bananas, tea, phosphates, plus minerals and metals. This series of commodity meetings has already begun with meetings on copper in September and on jute in October.

Our experience with the jute meetings, just completed, is discouraging. The developing countries after a preliminary exchange of views considered that the examination of the problem had been completed and the meeting only needed to arrive at a solution to the problem. The United States registered its disappointment with this approach.

We in the Agriculture Department believe that the political atmosphere of that meeting does not bode well for the future, since we fear that technical and economic considerations will be dismissed in a similar way at coming meetings on other commodities.

Contrast this situation with the objectives of the Multilateral Trade Negotiations (MTN) in Geneva. The objectives of the MTN are to improve the conditions of trade and access to markets for every country—to expand trade, not to burden trade with restrictive price agreements—to get rid of trade barriers, not to compensate some countries for the losses which trade barriers help create.

The MTN provides ample opportunity to meet the special trade needs of developing countries while giving them at the same time the opportunity to participate more fully in shaping the rules of the game. It is the MTN, therefore, that should receive the major emphasis in progress toward solution of specific commodity problems as well as improvement of general trading rules.

Trade is one of the oldest forms of communication. More perhaps than any other single factor, agricultural trade in the past 5 years has opened new channels of dialogue throughout the world. The ultimate significance of that fact is difficult to appraise in the daily hurly-burly of international oratory—some of it abrasive and unfriendly. But to me it seems inescapable that events of the past 5 years have not only opened new doors to American agriculture—they have also opened a new era in the prospect for international cooperation and world peace.



## AGRICULTURE AND WORLD ECONOMICS

(By Gerard Viatte, Head of the Agricultural Trade and Markets Division,  
Organization for Economic Cooperation and Development, Paris, France)

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I very much appreciate the opportunity to attend your 1977 Outlook Conference. It is a great honor for me personally, and for the OECD, to be a member of the very distinguished panel of this morning introductory seminar, although it is not very easy to be the only non-American at this table. Please excuse me if my accent is far from being typically American: you can't expect too much from a French-speaking European in this respect! Let me first tell you how much we appreciate, at the international level, the efforts of the USDA to continuously improve its outlook work, and to disseminate its results widely and frankly. This is surely a major contribution to the development of a better world market intelligence system, which should be beneficial to both Governments and farmers.

The preceding speeches have been so exhaustive and accurate that I can limit myself to three groups of short remarks, with the purpose of putting the American outlook in a wider perspective.

First, with regard to the general economic outlook. I have been pleased to hear that Mr. Malkiel remains optimistic despite the present slowing down of the rate of growth, and I hope that he will be right. The OECD is doing in-depth and regular work in this field. As you probably read in the press, we have recently reduced our forecast for the OECD growth rate for the record half of 1976 from  $4\frac{1}{2}$  to  $3\frac{1}{2}$  percent, so that the rate of growth for the whole year is likely to be around 5 percent, instead of our previous estimate of  $5\frac{1}{2}$  percent. As far as 1977, the prospects are still surrounded by a large degree of uncertainty. Various press reports have mentioned some figures for the 1977 OECD forecasts, but such figures have at present no official basis. We will publish our forecast only in the December issue of our Economic Outlook publication. However, it is likely that the estimate published in July regarding the first half of 1977 (5.25 percent) will also have to be revised downwards. I am afraid that I can't tell you more today.

But there is one aspect which I would like to stress with respect to food demand. In the present highly complex economic and political situation in the major OECD countries, the effect of economic growth on food demand is not as simple as before. A number of other factors, both economic and political, have to be taken into account: inflation rate, balance of payments situation (in particular with reference to the envisaged rise in oil prices), price policies, trade policies, etc. Policy factors are playing an increasing role particularly in Europe. Let me just quote two examples: (1) The operation of the monetary com-

pensatory amounts (MCA's) which have the effect of subsidising food imports into some EEC Member countries with devalued currencies, in particular the United Kingdom. It may prove extremely difficult to maintain the present level of MCA's for budgetary reasons. (2) The efforts by Italy to limit meat consumption and imports in order to reduce its balance of payments deficits. These two factors may have a great impact on demand for livestock products in these countries, where income and price elasticities are rather high, and, as a result, on the import requirements of feedgrains and soybeans.

Second, the world market outlook for the major commodities is dominated by the coincidence of very good crops in North America, the USSR and the developing countries. For wheat in particular, the outlook is completely different from the situation of the past five years. And it will certainly be discussed in depth during this seminar. For feedgrains, the outlook indicates a more balanced supply/demand relationship and the accumulation of stocks is expected to be much less pronounced than for wheat. The only sector characterized by a very tight supply situation is protein feed (soybeans, fishmeal, etc.)

The only factor which could have disturbed the outlook for the next season is the European drought, which was extremely severe in June-August. But the climatic conditions in September-October have been quite favorable and have helped to mitigate the problems, in particular due to a very good grass growing conditions. In any case, we must recognize that the drought has had very severe impact on some regions and farmers, but that it has not distorted the world markets so far. In the EEC, wheat production has been as high as last year (which was below average). Higher import requirements of feedgrains and soybeans can be expected, but this should be put in perspective: if we assume that the EEC may need to import about 6 million tons of corn more than last year, it is striking to note that this figure amounts approximately to the upward revision of the U.S. corn production from October to the November estimate. As far as the livestock sector is concerned, the exceptionally high slaughter registered in the summer represent to a large extent an anticipation of the normal autumn slaughter. If the winter is not too hard, allowing cattle to remain on grass as long as possible to offset the fodder deficit, it can be hoped that the cattle production potential will not be seriously affected. Dairy production continues also to be slightly higher than last year, despite some reduction this summer in France.

Third, I would like to draw your attention to three topics on which I think that we should all reflect further during the Conference: (1) The expected building-up of stocks, in particular of wheat, has important positive aspects, from the point of view of world food security. However, in the absence of a satisfactory international system, these stocks will have to be carried on mainly by the major exporting countries, i.e., the United States and Canada. As they are not isolated from the market, they have a depressing effect on the price, and may constitute disincentive for farmers to plant next spring or next autumn, if the situation remains the same. (2) The generally favorable supply situation for the next season does not imply that the world food problem is solved forever. A high degree of uncertainty remains about the medium- and long-term trends, in particular as far as the USSR

and the developing countries are concerned. A close watch at the developments continuous to be needed, try the way of improved market surveillance system, both at national and international levels. (3) The key to future food and agricultural situation seems to be to maintain producers' confidence and to ensure a satisfactory (if not total) degree of market stability, so that the important production potential which exists in the OECD area, in particular in North America, is used in the most efficient way, in the interest of the producers and of the domestic and foreign consumers alike.

## U.S. AGRICULTURE AND THE THIRD WORLD

(By T. K. Warley, Professor of Agricultural Economics, University of Guelph, Ontario, Canada)

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Not all aspects of a topic of infinite complexity can be dealt with in an address of tolerable length. My remarks are confined to only two aspects of the multifaceted relationship between U.S. agriculture and the Third World which I believe will command our attention in the year ahead, viz:

- trade aspects of the response to the problem of world hunger and food insecurity;
- the impact on U.S. agriculture of the LDCs' demands for a "new international economic order" which has as its center-piece proposals for far-reaching changes in international policies for commodity production, pricing and trade.

### WORLD HUNGER AND FOOD INSECURITY

By any objective standards the response of the United States to the problems of world hunger and malnutrition have been constructive and generous. It was a U.S. initiative which led to the World Food Conference and to the articulation there of a coherent global strategy to eliminate the scourge of present hunger and to banish the spectre of future famine. Within the context of the strategy, the United States has made important efforts to:

- expand grain output;
- direct a larger proportion of its resource transfers into agricultural and rural development;
- assure food aid supplies;
- secure the creation of a system of world grain reserves;
- support efforts to improve world economic systems in ways which would enhance the ability of the LDCs to meet part of their rising food needs through trade.

The details are well known. I want only to "flag" two issues which I believe will warrant closer attention.

First, there is a growing perception that the transfer of resources and agricultural technology from the United States to the LDCs entails some sacrifice of the former's comparative advantage and, potentially, may result in a narrowing of foreign market opportunities for U.S. agriculture. To date the assumption seems to have been that increased agricultural productivity in the LDCs would lead to faster economic growth rates, and these in turn to higher personal incomes,

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NOTE.—This address draws extensively on parts of a study prepared for the Canadian-American Committee on *North American Agriculture in a Changing World Economic Environment* which will be published early in 1977.

improved diets, and a rising commercial demand for U.S. food exports. This may be true in the long term. But our experience with palm oil this past year has cautioned that the results of agricultural development assistance programs may not be always, or immediately, beneficial. One wonders how many more palm oil situations lie ahead, and whether U.S. farmer resistance to the subsidization of their competitors may not stiffen further.

More generally, while there is no doubt that food output in the LDCs will have to be increased, I detect a growing concern that the LDCs emphasis on attaining food self-sufficiency, and the West's apparent willingness to help them attain that goal, is not in danger of encouraging some LDCs to follow food supply strategies that are inappropriate to their resource endowments, and of neglecting the economic interest of U.S. grain producers in seeing the LDCs rely more heavily on external food supply sources. The LDCs as a group already import 10 percent of the grains they consume (34 mmt average net imports in 1973-75) and they represent the most dynamic future outlet for North America's exportable grain surpluses. Indeed, I have never fully understood why importation of the projected 85 mmt "grains gap" between the LDCs effective demand and their indigenous production should have come to be regarded as a global food systems failure. Our farmers need the market, they have the capacity to export this quantity of grains, and a high and rising level of world grain trade would seem to me to be fully compatible with an efficient use of the world's agricultural and other resources.

Clearly, the extent to which the LDCs are *able* and *willing* to use the trade option in their food supply strategies is dependent on changes in international trade policies which would expand their foreign exchange earnings, and on the adoption of measures which would lower the risks which presently attend their reliance on world food markets.

The first matter, general liberalization of trade and more far-reaching changes in world economic systems, is the subject of the second part of this address. Sufficient to note here that developments in this area have an important influence both on the rate of improvement of diets in the developing countries and on the size of the market the LDCs provide for U.S. agriculture.

Even if expansion of food imports was ostensibly the best use to which LDCs could put any additional foreign exchange earnings they might secure, their willingness to extend their reliance on international food markets is materially affected by the economic and political vulnerabilities which presently attend this course. The uncertainties and risks that LDC policymakers must take into their calculus when contemplating a trade orientated food supply strategy include:

- sharp variations in world food supply availabilities and prices due to output fluctuations and the variable import demands of richer countries;
- the possibility of being denied access to supplies in periods of shortages;
- the danger of being treated as residual customers to be served only when the exporters' bilateral commitments had been fulfilled;
- the possibility that supplies will be withheld as a means of political compellance;



—the risk that they face an inexorable rise in the supply price of basic foods on world markets.

That is, from the viewpoint of LDC planners, the major influences on world food markets derive from the agricultural and food trade policies of the rich countries, and over these policies the LDCs have absolutely no control. Accordingly, initiatives in international agricultural trade policy designed to reduce the riskiness of relying on foreign food supply sources, and thereby to lower the discount factor which the LDCs must now apply to the trade option, are also important to the efficient use of the world's agricultural resources to alleviate hunger and to the size of LDC purchases of the products of America's farms. This is an important additional perspective from which to view a number of trade policy issues which will be preoccupying us in 1977. These include:

- the creation of a system of world grain reserves;
- negotiation of an international grains arrangement with price stabilizing objectives and special measures for LDC importers;
- negotiation of an improved GATT code which would constrain the ability of governments to unilaterally restrict access to their supplies;
- progress in liberalizing agricultural trade (which would result in adjustment of prices to shortages being spread more widely, instead of being concentrated in the international markets from which the LDC's must buy).

#### INTERNATIONAL COMMODITY POLICY

Quite the most dramatic and important change which has occurred in world political relationships in recent years is the success of the LDCs in shifting the subject of their poverty from the periphery of world affairs to the center.

The LDCs have become convinced, *inter alia*, that:

- they are poor because the West is rich;
- poverty is an issue of power, rather than of productivity;
- changing the external economic environment is more important to their escape from their penury than internal economic, social and political transformation;
- market systems widen international income disparities;
- the existing world economic order is dominated by the developed countries and tailored to their interests;
- nothing less than the creation of a wholly new international economic order will yield them the economic emancipation and control over their destinies that they seek.

Debate on the creation of "a new international economic order" was the subject of special sessions of the U.N. General Assembly in 1974 and 1975, of the Fourth United Nations Conference on Trade and Development held in May 1976, and of the Conference on International Economic Cooperation now in progress. Indeed, the subject permeates the work programs of virtually all the intergovernmental institutions.

The concept of the new international economic order which the LDCs have demanded encompasses every facet of the relationship be-

tween the advanced societies and the developing countries—aid; trade; monetary arrangements; private foreign investment; control of resources; access to capital and technology; the location of production activities; shared responsibility in decisionmaking; and the structure and functions of the multilateral institutions. In each of these areas the LDCs are demanding not marginal tinkering with existing arrangements but fundamental structural changes, the cumulative result of which would be to make their accelerated development a prime purpose of all international economic relationships. In sum, the LDCs are proposing the creation of a global system of pooling material and nonmaterial resources, systematic planning of the world economy, and its management in ways which will result in the redistribution of world income and wealth in their favor. More particularly to our purpose, the LDCs are proposing a coherent and comprehensive strategy to deal with the special problems they face in trade in commodities.

#### THE UNCTAD INTEGRATED PROGRAM FOR COMMODITIES

As articulated by the Group of 77<sup>1</sup>, the so called “integrated program for commodities” had seven principal elements: An expanding set of intergovernmental commodity agreements for an open-ended list of products; a common financing facility for those agreements with provisions for buffer stocks; index linking of the prices of LDC commodity exports to the prices of their imports; compensatory financial arrangements to guarantee the total value of their commodity exports; a network of intergovernmental purchase and supply commitments; improved conditions of access to advanced country markets; and the deliberate transfer of primary processing activities from rich to poor countries.

The UNCTAD Secretariat was charged with the task of translating the LDCs’ demands into a set of practical proposals for action by the international community. A modified version of the secretariat’s initial proposals was examined at UNCTAD IV and—with specific reservations being expressed by particular countries—was endorsed by consensus. It was agreed that preparatory meetings for international negotiations on individual products should be convened under UNCTAD auspices and that commodity negotiating conferences should be completed by the end of 1978. A negotiating conference on the establishment of the proposed common fund will be held before March 1977. Other parts of the program are being carried forward in the GATT multilateral trade negotiations, in the CIEC, and elsewhere.

The general objectives of the integrated program as now adopted are: To create more stable conditions in world commodity production and trade; to reduce fluctuations in the LDCs’ commodity export earnings; and to ensure that their receipts from commodity exports improve in real terms at a pace adequate to support their accelerated development.

<sup>1</sup> *Manila Declaration and Programme of Action*, TD/195, UNCTAD, Geneva, Feb. 12, 1975.

The key objectives of the LDCs in the negotiations which will be held in the coming months are to secure the application to commodity trade of six principal and mutually supportive measures.<sup>2</sup>

First, they seek the negotiation of a set of formal intergovernmental commodity agreements (ICAs) of indefinite duration. For 10 "core" commodities the primary instrument of price management would be international buffer stocks.<sup>3</sup> The ICAs would provide for minimum and maximum prices for commodities moving in international trade. In principle, the negotiated price range for each commodity would bracket its long-run equilibrium price. However, reversal of an adverse trend in prices and assurance of minimum prices that would lead to an expansion of the LDCs' real export earnings are specific pricing objectives of LDC exporters and of the UNCTAD secretariat.<sup>4</sup>

Second, it is proposed that an international fund be established for those commodities for which buffer stocks are to be used to implement the pricing provisions of ICAs. Resources for the common fund would be both subscribed and loaned, with part of the capital being paid up and part on call. Resources would be drawn from importing and exporting countries, and the OPEC countries and the international financial institutions also might participate. The major function of the fund would be to act as a central banker for existing commodity agreements. But, additionally, the fund would be used to give emergency support to prices of commodities for which ICA's had not been negotiated.

A third measure is the index linking of the prices of LDC commodity exports to the prices of their imports of manufacturers. This is designed to prevent erosion of the real value of commodity prices by inflation and exchange rate changes. "Direct" indexation would entail changing the market prices of traded commodities to maintain the terms of trade at agreed base levels. "Indirect" indexation would require a system of international financial transfers (or deficiency payments) to compensate LDC exporters for shortfalls in the market prices of individual commodities below agreed reference levels.

Even where ICAs with minimum price provisions existed, the LDCs' commodity export earnings might fall below anticipated levels due to shortfalls in output or temporary weaknesses in world demand. Accordingly, the fourth proposal is that ICAs be supplemented by a general arrangement for stabilizing the LDC's receipts from their commodity exports by an expansion and liberalization of the existing IMF compensatory finance facility. The more ambitious demands of the Group of 77 would have the LDC's commodity export earnings stabilized in real terms and around a rising trend.

Fifth, a wider role is seen for intergovernmental supply and purchase commitments in primary commodity trade. Their purpose would be to enhance market stability and predictability by a better matching

<sup>2</sup> Additional measures are also envisaged. These include demand expansion, improving the competitive position of natural products *viz a viz* synthetics, assistance with the extension of processing activities in developing countries and with export promotion, and changes in international market structures.

<sup>3</sup> Sugar, cotton, cocoa, coffee, tea, hard fibres, jute, rubber, copper, and tin. The LDCs also anticipate that the negotiations now in progress in the International Wheat Council and the GATT will lead to an international arrangement for grains having stocking provisions.

<sup>4</sup> *New Directions and New Structures for Trade and Development*, TD/183, UNCTAD, Geneva, May 1976, p. 25.

of net export availabilities and net import requirements, and to provide greater assurance of access to markets and to supplies for exporters and importers respectively. Aggregate reciprocal purchase and supply obligations would be concluded multilaterally, but they would not specify the direction of trade, nor would they have the full character of a contractually binding obligation on individual governments.

Finally, the program calls for improved access to developed country markets for the raw and processed commodity exports of the developing countries. This would be accomplished by lowering the tariff and nontariff barriers that presently impede the LDC's foreign sales. The LDCs wish to see improved access accorded on a preferential basis. They place particular emphasis on the stimulus to local processing that would result from lowering the high effective rates of protection typically accorded processing industries in developed countries by the escalation of their tariff schedules with the degree of product fabrication.

#### IMPLICATIONS FOR U.S. AGRICULTURE

It would be a grave mistake to believe that the integrated program is concerned with such esoteric commodities as coffee and copper and will affect U.S. agriculture only tangentially. On the contrary, if adopted, UNCTAD's multicommodity and multidimensional approach (both as to technique and objectives) will encompass a large proportion of the output of U.S. agriculture. Consider the following:

- the program now embraces important products of U.S. agriculture (sugar, cotton and cotton products; meats, vegetable oilseeds and oils); the LDCs envision a comprehensive international arrangement for wheat, rice, and feed grains (albeit negotiated outside UNCTAD); the candidate commodity list is open ended;
- U.S. producers will be affected directly by changes in world trading arrangements for commodities produced in both the LDC's and the United States;
- the progressive establishment of a global regime for commodities in which Government decisions grow in importance relative to market mechanisms will effect fundamental changes in the international economic environment in which U.S. producers have to function, and U.S. participation in them would entail changes in U.S. trade and agricultural policies;
- measures which will accelerate economic growth in the developing countries and expand their capacity to expand imports of agricultural products from Western sources will be of benefit to U.S. producers of some commodities.

Some of the manifold ways in which implementation of the UNCTAD plan for commodities could affect U.S. agriculture will be apparent from a brief comment on its program elements.

#### *International commodity agreements*

Insofar as ICAs have as their primary purpose the stabilization of prices, supplies and investment incentives, they might be looked on with some favor. The price mechanism in unregulated markets does a remarkable job of one of its functions, allocating available supplies. It is less successful in allocating resources and incomes. Commodity mar-



kets are characterized by cycles of over and under production and arbitrary redistributions of income. Accordingly, there is a case for contemplating the negotiation of ICAs with stabilization objectives.

History attests that it will not be easy to negotiate durable commodity arrangements of the classical type. Only five have been introduced in the postwar years. Experience has shown that the technical and economic characteristics of many commodities preclude successful market management. Further, for the ICAs that have been negotiated, the dynamics of market conditions have exceeded the flexibility of their provisions, so that the resultant maldistribution of benefits and costs has disposed towards extreme fragility in the arrangements. For these reasons, it will be extremely difficult to implement the UNCTAD proposal that a network of ICAs be negotiated for a large number of commodities in a predetermined time frame.

However, the major difficulties with the proposal concern fundamental policy issues. To date, a central presumption of the world trading system has been that commodity market management by international agreements was a departure from the norms of international commerce, to be undertaken only in exceptional circumstances. Furthermore, the sole legitimate purpose of such arrangements was to reduce the amplitude of fluctuations of prices around their trend. This is not what the LDCs are proposing. They are seeking the creation of a permanent regulatory regime for a growing list of commodities, and demanding that ICAs be used to change price trends so as to redistribute international income in their favor. Thus, acceptance of the LDCs' objectives would require first a fundamental change in the Western world's views of the purpose of ICAs. Second, since developed countries are large producers and exporters of many primary products while most LDCs are net importers of internationally traded commodities, raising world commodity prices could produce perverse redistributions of world income. Third, the buffer stock is a wholly inappropriate technique for effecting sustained income transfers, and should those proposed by the UNCTAD Secretariat be diverted from the stabilization objective and onto the course of changing the terms of trade it is inevitable that global production control and market sharing would be required. Further, multiple pricing systems would have to be introduced to offset adverse income effects on LDC commodity importers. A corollary of these developments would be that production, trade, and pricing would become a matter of continuous and detailed political determination. At the extreme, every alteration in production levels, market shares and absolute and relative prices required by developments in technology, comparative advantage, consumer preferences and changes in supply and demand, would become a test of political strength, with the influence of market forces being tenuous, and the capacity of markets for self-correction being excluded.

The issues involved in the proposal to create an extensive set of ICAs transcend the particular effects that such a development would have on U.S. agriculture. But in that specific context, it is not apparent that the immediate and long-term interests of the agricultural and food industry of the United States would be furthered if wheat, rice, sugar, cotton and oilseeds (and other products that might be added to



the LDCs' open-ended candidate list) were drawn into a generalized regulatory regime for commodities. A case-by-case approach to stabilization orientated ICAs can be supported, though with some skepticism about whether practical and durable arrangements can be devised. To concede that Government decisions rather than market forces should be the dominant factor in commodity production, trade, and pricing could pose a grave threat to the ability of U.S. agriculture to maximize its contribution to the U.S. economy and to world agricultural production.

### *Common funding*

The LDCs and the UNCTAD Secretariat regard the proposals for common funding of commodity stocking arrangements as the second important pillar of the integrated program for commodities. It is argued that the availability of financial resources would catalyse the formation and facilitate the functioning of ICAs, and that the aggregate of financial resources required under a joint funding arrangement would be lower than if each ICA was financed separately. Additionally, the LDCs have attached great importance to the establishment of a new agency, potentially under developing country control, with broader powers to intervene in markets than those required merely to support buffer stocks.

The case for common funding is not compelling. It is doubtful if a shortage of financial resources has been a major obstacle to the conclusion of ICAs. It is improbable that (surplus) stocks would be an attractive financial investment outlet for the OPEC countries or any other group. More generally, it is impossible for governments of Western countries to make a political commitment to establish a common fund in advance of agreement that ICAs with stocking provisions are necessary, and prior to testing the negotiability of mutually advantageous arrangements. In any event, the main danger to U.S. agriculture could lie in the proposal that the fund have an independent trading function. Two matters are cause for concern. First, one may doubt whether the expertise required for (multi) commodity trading would be available to the fund's managers. Second, ambiguities surrounding the control of the fund's trading activities raise the possibility that there might be considerable potential for cross commodity subsidization and for disruption of markets.

### *Indexation*

The proposal of the LDCs that the prices of their exports be protected from erosion in real terms by indexation amounts to a demand for a system of internationally guaranteed prices for their commodity exports, and for the continuous adjustment of these prices to offset any decline in the terms of trade between their exported commodities and their imports of manufactures.

There are numerous difficulties with this proposal. At the conceptual level, no direct inferences can be drawn safely between movements in the LDC's net barter terms of trade and their economic well-being, or their capacity to import. Technically, there are very real difficulties in measuring changes in relative prices. General policy objections include the dangers that indexation would exacerbate inflation, impose additional burdens on commodity importing poor countries, and ossify international price relationships.

Should indexation ever be implemented the implications for U.S. agriculture would not be encouraging. Direct indexation—which implies adjusting the world market prices of traded commodities—would require continuous international supply management, market sharing and multiple pricing systems. The LDCs have even flirted with the idea that price adjustment might be effected by having commodity trade conducted through international marketing boards with exclusive buying and selling rights. Indirect indexation, the alternative technique suggested, in general would be markedly less odious. Supply management, inflationary effects, and perverse income transfers would be averted; it could be applied to a wide range of commodities; and greater selectivity in compensating poor country exporters would be possible. However, even with this technique, LDC exporters would have an advantage over U.S. suppliers of competitive products by being accorded an internationally guaranteed price.

Developed country opposition to indexation has been so strong that direct reference to it was left out of the version of the integrated commodity program that was adopted at UNCTAD IV. This was a tactic rather than a conversion. Indexation remains a central objective of the LDCs, and its retention was implied insofar as the final resolution of the Conference calls for the establishment of commodity pricing arrangements which would take into account, *inter alia*, movements in prices of manufactured imports, inflation, and exchange rate changes.<sup>5</sup> There is little doubt that the subject will resurface when detailed producer-consumer negotiations on commodities are joined.

### *Compensatory finance*

Western countries, including the Government of the United States, have favored the stabilization of the LDCs' earnings from their commodity exports by supplementary or compensatory finance schemes. The existing IMF facility was significantly extended and liberalized in late 1975, and the U.S. Government proposed the creation of an even more generous "development insurance fund" at the seventh special session of the U.N. General Assembly in September 1975. This approach to helping the LDCs sustain their development plans and maintain their capacity to import foods and other goods has much to commend it. Compared with ICAs, compensatory finance schemes attack the problems of commodity earnings' instability directly; there is more scope for selectivity in the distribution of benefits among developing country exporters; and market forces are permitted to play their role in resource allocation.

From the viewpoint of U.S. agriculture, compensatory finance schemes have the demerits of underwriting the aggregate export earnings of LDC producers of competitive products, and the latter's competitive advantage would be enhanced to the degree that the grant element in compensatory payments was raised relative to the loan component, and to the extent that entitlements for supplementation were determined on the basis of the "real" values of export receipts through indexation—both of which are goals of the LDCs. However, so long as the "norms" for the LDCs' commodity export earnings were projected on the basis of usual market shares and competitive prices,

<sup>5</sup> Report on the UNCTAD Conference at its Fourth Session, TD/217, UNCTAD, Geneva, July 12, 1976; Resolution 93 (iv).

developed country producers probably would not experience a serious competitive disadvantage from the extension of compensatory financial arrangements.

### *Multilateral contracts*

The proposal by the UNCTAD Secretariat for the establishment of a network of intergovernmental contracts is not readily evaluated, not least because this is an area of the integrated commodity plan where the objectives are most ambiguous. One component of the proposal is concerned with joint forecasting of net import requirements and net export availabilities and the exchange of information on production, stocks, prices, etc. This is a valuable exercise that has long been conducted in the commodity councils and the Intergovernmental Commodity Committees of FAO. Its extension to a wider range of commodities and participants would be welcome. However, it is clear that much more is proposed, including the acceptance by governments of importing and exporting countries of commitments to supply and to purchase specific volumes of products. Also, the possibility of associations of exporting and importing countries overtly concerting their respective positions is envisioned. There are at least three difficulties with this concept. First, many governments of developed countries, including that of the United States, would neither wish to replace "arms-length" trading by private interests by direct government involvement in commerce nor have they the authority and the expertise required to do so. Second, it would seem inevitable that bargaining between associations of producing and consuming countries would eventually extend to institutionalized bilateral negotiation on prices as well as on traded volumes. To many observers such a wholesale bureaucratization and politicization of world commodity trade would be a quantum jump in the wrong direction. Finally, even if the United States declined to participate in intergovernmental trading activities, U.S. farmers could still be affected adversely by the concentration of the effects of global supply and demand fluctuations into the residual market not covered by contractual arrangements.

### *Improved access*

The reservations the developed countries have about proposals for a generalized regulatory regime for commodities stem from their opposition to the violation of their fundamental trade principles and from their doubts about the practicability and worth of specific program components. This is not true of the demands of the LDCs for improved access to their markets. Here all that is at stake is economic interest.

If the developed countries take seriously the trade principles they espouse, a generous response to the demands of the LDCs for liberalization of trade in raw and processed agricultural products can scarcely be denied. Generally, the record of the Western countries on this score is not good. Tariff and nontariff barriers (including the provisions of national farm programs) remain high on LDC agricultural exports that are competitive with domestic output. Tariff escalation provides high rates of effective protection to many processing activities. Few competitive agricultural products have been included in the generalized system of preferences. As a result, the LDCs' comparative advan-



tage in the production of some agricultural products if frustrated, and expansion of their export receipts and their vertical diversification into processing are correspondingly constrained.

The United States has a better record than Europe and Japan in this regard insofar as a high proportion of the LDCs' complementary agricultural exports already enter duty free; the United States has included a large number of agricultural and food products in its (belatedly introduced) generalized system of preferences; and agricultural policies for some competitive commodities (e.g., sugar and cotton) are now notably less trade distorting than previously. However, there is still great scope for further improving the LDCs' access to the U.S. market for competitive agricultural products by lowering the level and changing the structure of tariff schedules; expanding quotas; removing excise duties; reducing the protection accorded by specific farm programs; and extending the agricultural product coverage, enlarging the quotas, and relaxing the rules of origin of the generalized system of preferences.

Trade liberalization is an important element of the North-South dialogue on international commodity policy. It is the component that is most clearly coincident with the Western countries' trade principles and, correspondingly, the measure to which they should be most ready to accede. There is no question that it would provide important benefits to the LDCs, and it is appropriate therefore that high priority is being given to this topic in the GATT multilateral trade negotiations.

Trade liberalization for products of export interest to the LDCs would have diverse effects on U.S. agriculture. Commodity groups that look on the LDCs primarily as markets would gain from an expansion in the purchasing power of their customers. This is pre-eminently the situation for grain growers. By contrast, producers of agricultural products and suppliers of associated services for commodities that compete with like products or close substitutes originating in the LDCs would experience intensified competition in the domestic market. This group includes producers and processors of many fruits and vegetables, beef, mutton and lamb, wool, tobacco, oil seeds, sugar, and cotton.

Furthermore, the terms under which the LDCs are given improved access to rich country markets are important in determining the extent of the intensified competition that U.S. producers of competitive products would face in domestic and foreign markets. For instance, the LDCs are asking that they be given preferential access for their exports. If this were accorded by other advanced countries U.S. agricultural exports would face intensified competition in overseas markets. Conversely, if the United States sought to provide LDC exporters with expanded market opportunities by lowering MFN tariffs, intensified competition in the domestic market would result from increased supplies from both LDC and developed country sources. There are other important aspects of the terms of liberalization. Thus, the LDCs are requesting that they be granted bound margins of preference, be permitted to use export subsidies, have their exports exempted from the application of safeguard measures, and be permitted to meet lower standards in the areas of health and sanitary regulations. Most of these requests seem too extravagant and will be resisted.

## CONCLUDING OBSERVATIONS

We have reached a moment in history when the demands of the LDCs for a reordering of the world's economic arrangements can no longer be met with torpid inaction by the developed countries. The notion of a "new international economic order" has given conceptual coherence to the nature and scope of the changes the LDCs seek, and the "integrated program for commodities" has drawn together for simultaneous consideration the numerous measures that the LDCs perceive as constituting a coherent global strategy for commodities. The outcome of the debate that has now been joined between rich and poor countries on the nature of their economic relations, including appropriate arrangements for world commodity production and trade, is decisively important, both for the living standards of many hundreds of millions of people and for the achievement of amity in political relations between developed and developing nations during the remainder of this century.

Ostensibly, the scope for agreement between rich and poor countries has widened in the past 2 years. The developed countries have recognized that the accelerated development of the LDCs is not an optional extra in the functioning of the world's economic systems but a political, economic and moral imperative. Equally, they have a clearer perception of their interest in dissuading the LDCs from "rocking the planetary boat" by interrupting supplies of essential raw materials or by blocking progress in a variety of forums addressing consequential global policy issues. More generally, the developed countries now perceive that stable growth of their own economies requires free access to assured supplies of raw materials, and enhanced stability in the LDCs' ability to purchase Western exports. For their part, the more moderate LDCs have moved away from ideological posturing and the presentation of impossible demands for implausible changes in the world economic order. Their concern now is to secure a more equitable share of a growing world product while avoiding damaging an admittedly imperfect but also dangerously fragile world economy. Both groups appreciate that if international economic relations are treated as a zero sum game, the result will be a negative sum outcome in which all will lose, and none more so than the poor.

There is much to applaud in the proposals that the UNCTAD Secretariat has made for a coherent global commodity policy. The emphasis placed on cooperative actions that would improve the economic performance of commodity markets is particularly welcome. These measures include the more efficient use of world agricultural resources through the liberalization of trade and concerted measures to enhance stability. Cycles of under and overinvestment in agricultural products and the associated wild gyrations of supplies, prices, earnings, and expenditures are wasteful and disruptive. In the developed countries, commodity shortages feed price inflation, cause dislocations in consumption, and stimulate investments in high-cost alternative sources of supply and substitutes. Excess production and low earnings disrupt the LDC's development plans and impair their ability to purchase foreign goods, including badly needed foodstuffs. Hence, there are sound economic reasons for a cooperative search



for means to liberalise commodity trade and to stabilize international commodity markets and LDC earnings.

For all that, there should be no mistake about the gulf that still separates the developed and the developing countries.

The failure to date to find an accommodation in international commodity policy reflects a fundamental ideological division between the two groups on the functioning of the international trading system. Looked at from the perspective of the developed countries three of the central assumptions they have held about the world trading system are challenged by the integrated program for commodities. First, it was assumed that (with temporary derogations and special assistance) the less developed countries would adopt progressively the predominantly market-orientated system of international exchanges employed by the advanced countries and characterized by "arms length" trading by private individuals responding to market signals. Second, there was an assumption that trade in commodities for the most part would fit into the same kind of international economic regime as trade in manufactured products. Selective concerted interventions by governments in commodity markets might be necessary on occasion but these were to be regarded as aberrant and transient, to be contemplated only where exceptional economic wastes could be demonstrated, and implemented only when very favorable ratios between the benefits and costs of interventions were assured. A third assumption was that the international trading system was agnostic with regard to income distribution. Its central concern was efficiency in resource use and thereby the growth of world product, not its distribution. There was a presumption that if the international distribution of income resulting from competitive trade was politically unacceptable redistribution should be effected by direct transfers and not by the manipulation of the terms of trade, market output and shares, since such manipulations are themselves prone to widen international inequalities in income and cause additional inefficiencies in world resource use.

Contrast these assumptions with the belief of the LDCs. In the first place, they are convinced that economic wastes in unregulated and imperfect commodity markets are exceptionally large and that continuous intervention is warranted on this score alone. Second, they believe that the supply, demand and structural characteristics of commodity markets are such that giving free rein to market forces will necessarily widen international income disparities. Third, they hold the view that international economic relations should be concerned with equity as well as efficiency, and that international commodity policy therefore should be directed toward effecting a redistribution of world wealth.

It will be apparent that the demands of the LDCs for the creation of a continuous, comprehensive, regulatory regime for commodities, that income redistribution be its primary goal, and that the levels and shares of production and the terms of trade should be established by political decision rather than by market forces, constitutes a truly revolutionary challenge to the fundamental precepts of the world economic order. More particularly, it is at variance with the very basis on which the developed countries conduct their economic rela-

tions with each other and, beyond that, with their broad view of how the world trading system should evolve in the future.

Characteristically, the main burden of making a response to the far-reaching demands of the LDCs has fallen on the United States. The U.S. initial position was to maintain that the old economic order had served advanced and developing countries well; to deny that a new economic order was in the making; to stress that the primary concern must be with ensuring the growth of world output rather than with its distribution; and to emphasize that adjustments in economic relations must confer mutual benefits on both rich and poor countries to be acceptable and durable. Subsequently however, the United States has advanced numerous specific proposals for changes in world economic systems which would favor the developing countries and particularly the poorest amongst them. All of the U.S. proposals are consistent with a liberal and a more just economic order. Many of them are coincident with the LDC's aspirations, e.g. expanded aid; easier access to Western capital and technology; accelerated trade liberalization; more liberal compensatory finance provisions; and a willingness to consider on a case-by-case basis the merits of commodity arrangements with short-run stabilization objectives. However, the United States has been resolute in its opposition to the elements that the LDCs regard as central—the use of commodity policy to transfer resources to the LDCs; agreement that intergovernment commodity arrangements should be a permanent and widespread feature of world commodity systems; a prior commitment to the common funding of buffer stocks; indexation of commodity prices and export receipts; and the contrived redistribution of production and processing activities.

How the conflict of perception and purpose between the developed and the developing countries will evolve, and which elements of their respective proposals will find an enduring place in future international commodity policies cannot be foretold at this time. Certainly the answers will not be found exclusively in the teachings of Adam Smith, and in the simple prescriptions of those with a *simon* pure view of the virtues of competitive markets who reject all *dirioiste* elements in world commodity markets. But neither is it to be found in the writings of Karl Marx and in the proposals of those who seemingly seek to create a global command economy for world commodity production, pricing and trade. The answer lies somewhere in between, in some form of a "mixed" international economy that, like our national economies, is partly market orientated and partly politically directed, and concerned with both efficiency and equity. At this juncture the two are inseparably linked, since the LDCs will not cooperate in the reform of the international economic system unless the problems of global equity are addressed, and their cooperation is needed for its effective functioning.

What is certain is that the agricultural sector of the United States is caught at the center of the issues involved at this time of world metamorphosis. As stated earlier, the industry as a whole has much to gain from the accelerated economic development of a group of countries that together already constitute a large commercial outlet

for America's farm product exports. It is also clear that some sectors of U.S. agriculture will face intensified competition as a result of the liberalization of agricultural trade that will constitute a component of the evolving trade relationships between the rich countries and the poor. But it is equally certain that U.S. agriculture cannot escape the influence of global regulatory arrangements, the creation of which appears to dominate the drift of the times. The danger is that, in devising a new international order for commodities, the international community will contrive an inappropriate mix of market and political forces. Specifically, one fears that a misguided response to the legitimate needs of the LDCs, or attempts to buy relief from continuous political harassment, will result in the developed countries agreeing to tilt the system so far toward the aspirations of the LDCs that commodity production and trade will become subjected to political direction and management to a degree that impairs efficiency in global agricultural resource use and diminishes the potential and the performance of U.S. agriculture. The world is too poor for a such a Faustian bargain.

## ISSUES IN U.S. INTERNATIONAL TRADE

(By William Barraclough,\* Director, Office of International Trade,  
U.S. Department of State)

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It has been just 3 years since the industrialized world began its slide into the most serious economic recession of the postwar period. During these 3 years, there were strong pressures on governments to protect jobs and production in domestic industries and agriculture by limits on imports. The members of the Organization of Economic Cooperation and Development (OECD) pledged not to resort to import restrictions. With a few minor exceptions, they have kept that pledge. Thus, throughout these 3 years, world trade has remained at high levels, enabling all the Western countries and Japan to begin their economic recoveries faster than many economists had anticipated. It was a severe test of our cooperative response to interdependence. It is a test we have passed.

But we are not yet out of the woods. Local problems have caused differences in the timing of recovery here and abroad. In the United States, capital investment and consumer spending were at low levels in 1975. As a result there was a slackened demand for imports. The prevailing exchange rates and other factors stimulated American exports, and last year we had a record trade surplus of over \$11 billion. Our 1975 exports—over \$107 billion—represent something like 7 percent of our gross national product; 5 years ago we exported only about 4 percent of our GNP.

So trade—export trade, in this case—is of great importance to us. But it will come as no surprise that trade—yes, export trade—is important to other countries as well.

This year, individuals and businesses in America have resumed a more normal pattern of spending and investment. That means they seek more imported goods, and indeed our imports have risen dramatically, and thus far this year we are running a trade deficit of about \$4 billion. This means among other things that our trading partners in Europe, Japan, and elsewhere, can increase their exports and thus their rates of economic recovery. And when that happens, they will increase their purchases from us.

I mentioned a moment ago that for the most part the industrialized countries have resisted pressures to close the door to imports during the difficult period we have come through. The governments involved deserve credit for this, since I can assure you the pressures for protectionism were fierce everywhere. Our recent experience has shown

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\*The views expressed in this paper are those of the author and not necessarily those of the USDA.

that in periods of economic slowdown, holding the line is a real achievement. It has also shown that in such periods, trade liberalization is difficult.

Trade liberalization—the reduction or elimination of tariffs and other barriers to trade—is a goal to which we are committed by national interest and commonsense. It is a goal which the Trade Act of 1974 directs us to work for. We are presently engaged in a new round of multilateral trade negotiations, known as the Tokyo Round. This marks the seventh time since World War II that we have participated in such talks, held under the auspices of the General Agreement on Tariffs and Trade, in pursuit of our national interest in a more open world trading system.

Since trade liberalization involves reciprocal concessions which will change patterns of economic activity, the best time to make such progress is when economies are expanding and strengthening. From all indications, we and our key trading partners are moving into such a period, with economic indicators pointing to economic expansion in most industrial countries next year.

There are warning signs; the possibility of an oil price increase and the economic difficulties being experienced by certain European countries. But we, nevertheless, believe that current conditions for vigorous trade liberalization will be at an optimum next year. This is why we and other major countries have agreed to the goal of completing the current round of trade negotiations by the end of 1977.

In the six rounds of trade negotiations prior to the current Tokyo Round, the focus was on reducing tariffs. Although there are still high tariffs on the books here and abroad, our average tariff on items where we have tariffs, calculated on a trade weighted basis, is now about 9 percent; that of the EC is about 10 percent; and Japan's is perhaps 20 percent.

The Trade Act gives us authority to cut all tariffs by 60 percent and the possibility of eliminating entirely all U.S. tariffs under 5 percent. We are now negotiating a formula for tariff reduction which we hope will result in a substantial reduction in the tariffs of all industrialized countries.

With the gradual reduction of tariffs in previous negotiations other trade restricting measures—variable levies, import quotas, import prohibitions, discretionary licensing systems, and discriminatory standards—have assumed increased importance.

A beginning must be made in reducing or eliminating these nontariff barriers if world trade is to continue to expand. The Trade Act gives us a mandate to negotiate reciprocal concessions in this area. We are attempting to do so. But the complexities are great, the negotiating task difficult, the results uncertain. It is particularly important for our agricultural trade that we make progress in this area, since nontariff barriers are generally more widespread and more troublesome in agricultural trade than in industrial trade. Of course, other countries will be seeking U.S. concessions on what they see as American nontariff barriers to their exports, agricultural and industrial. Whatever we can accomplish at the end of the day must be a bargain in which each side sees benefits.



Let us look, then, briefly at the issues we have to face if we are to achieve a more open trading system, particularly for agricultural products.

The first—and most basic issue—is one which touches all nations. It is the question of how much, if at all, governments can support high-cost agricultural production and then protect it from international competition. Governments traditionally establish agricultural policies according to domestic social and political needs, giving less weight to trade matters or international pressures. This is a fact of life our negotiators must live with. Domestic farm programs normally involve some form of price supports. These, by definition, maintain prices at levels higher than they otherwise would be. As you well know, the net result frequently is surplus production which must be stored or disposed of overseas or in some other way which does not disrupt normal commercial markets domestically.

The problems created by these surpluses are unpleasant to the governments which have to deal with them. However, governments are willing to put up with those problems because of what they believe are overriding social and political concerns. For example, many governments assert they must slow the movement of people from rural areas to cities because the cities are already congested and lack housing and job opportunities. Others, as a matter of policy, encourage people to remain in the rural areas to assure that the land is worked, fields are not lost to overgrowth, erosion does not destroy good land, and the beauty of the countryside is maintained.

Of course, governments also advance economic arguments for their policies of support to high-cost agriculture. Perhaps the most attractive of these during recent periods of shortage and high price is the argument that what is now uneconomical, very high-cost agricultural production will be needed—and eventually will become economical—as the world's need for food increases.

Agricultural support programs justified by the types of arguments I have just mentioned, have two clear effects on international trade: (1) low cost efficient producers are kept out of some markets so that the higher cost domestic producers may sell in those markets and (2) low-cost producers lose third markets to high-cost producers whose governments subsidize the sale of surplus products overseas.

These practices undermine a basic premise of U.S. trade policy—that nations should not pass the costs of domestic programs on to their trading partners. They are particularly disruptive of normal trade flows in agricultural products. It is the U.S. position that these problems must be addressed in the MTN.

A very real challenge in agricultural trade negotiations is to find ways to reduce forms of protectionism which are not easily quantifiable. It is relatively easy to negotiate tariff cuts, because it is possible within limits to estimate the probable trade effects of a certain tariff reduction on a given product. It is also generally acknowledged that the purpose of tariffs is to restrict imports (although they are important sources of government revenue in some—mainly developing—countries).

On the other hand, the trade effects of most nontariff barriers are difficult, sometimes impossible, to measure. In addition, the purposes

of many nontariff barriers are frequently in dispute. Who can measure the trade effects of a requirement that an item may be shipped only in a certain size container? Who can measure the trade effect of a prohibition on advertising? Of a lengthy inspection process? Of a complicated form? And how can we negotiate a procedure which one side says is necessary for statistical records, but the other side says is calculated to discourage imports? These are all real examples from a very long list. Human ingenuity has not been found wanting when it comes to clothing trade restrictions with more noble motives.

A second need is to make sure that when import barriers are lowered, imports do not increase in such huge amounts or in such an erratic, unanticipated fashion as to do real damage to the economy of the importing country. Thus, we need mechanisms—which we call safeguards—to make sure that the process of increasing market access to overseas suppliers does not get out of control and inflict net injury instead of bringing net benefits to importing countries. These safeguard measures must work quickly and fairly. There must be effective procedures for resolving disputes which arise when things do not go as planned. I am optimistic that the MTN will make substantial improvements in this area. If we do, it should be easier for us to work toward increasing our access to overseas markets while granting reciprocal concessions to those who hope to sell more goods to us.

There remains the problem of unequal competition between exporters for third country markets. As I have suggested, as long as governments adopt farm policies which encourage the production of surpluses, they will be tempted to dispose of the surpluses by subsidizing sales to overseas customers. This is usually done by selling from storage at less than the acquisition price. The EC, which is holding nearly one and a half million tons of skim milk powder in storage, is buying that product for over \$1,000 a ton, and is willing to sell it overseas for less than half that. Many countries have similar practices; we did until a few years ago. Such practices penalize producers who seek to sell in foreign markets but who do not have or do not need government subsidies to support them.

There are two ways to approach this problem. The first is to limit production in high cost agriculture, or to increase consumption, build food stocks and increase food aid. These policies limit or eliminate surpluses available for export. This approach, while logical, faces very tough sledding in the trade negotiations because countries are generally unwilling to permit international agreements or international bodies to interfere with domestic production policies.

The other approach is to prohibit or regulate the international disposal of surpluses generated as a result of production incentives. To be realistic, such control should be aimed only at surpluses which exist owing to government incentive programs. This approach also presents negotiating problems, the main one being how to define and classify government incentives. How would one classify a subsidy for fence-building or government sponsored research which develops improved seeds or fertilizers? the activities of Agricultural Extension Officers? the Government's part in a Soil Conservation District or in a flood control program?

The present GATT provisions on subsidies are too vague to serve as a clear guide. In the current MTN, the United States has proposed

a code on subsidies and countervailing duties, the latter being import charges used to neutralize the price advantage provided by export subsidies. Our proposal would classify subsidy practices, prohibiting direct export subsidies, subjecting others to greater discipline, and permitting certain kinds which are widespread and have a negligible, very indirect effect on exports.

There are, as you know, many political considerations which affect our relations with these countries. But I am speaking today only to the economic ones. The tendency and ability of state trading agencies to make unpredictable and large scale swings in and out of commodity markets (particularly the grains market) is well known. Our response in grains was to negotiate a long-term commitment from the Soviets on annual purchases, providing our producers with an assured, stable market. There are, however, less dramatic problems with state trading enterprises which merit attention.

State trading enterprises do not have to make a profit to survive; they establish prices based on perceptions of social needs. This is possible in economies where producers need not be directly concerned with competition or profits.

When such producers export to other countries, how can the importers judge if there is an element of subsidy in the import price? How can the importer determine fair market prices in the home country? For trade in the other direction—where the state trading country imports a consumer item from a market economy company and then sets the retail price several times higher than the import price—how should the exporting country deal with the trade effect? How we address these issues in the trade negotiations is, frankly, not yet clear.

We face very tough negotiations on this issue, and we have a major stake in a successful outcome. At present, one important way we can help our own cause is to resist new programs to subsidize the export of surplus commodities of which the U.S. Government now holds large stocks.

Another issue I would like to mention today is the development of trade relations with various communist and socialist countries collectively known as "state trading" countries because of the fact that their economies are not market oriented. The only certainty is that they will become increasingly important issues as our trade relations with these countries increase.

#### CONCLUSION

I have mentioned some of the major issues facing us in the Geneva trade negotiations. There are others since the agenda in this round of negotiations is probably broader than in any previously undertaken. At times many of the problems look insurmountable. But I am convinced that we can—with a firm will and the right dose of realism—advance in every single area. If we are willing to resist protectionism as we ask others to do, and if we are willing to impose on ourselves the same sort of discipline and restraint that we would impose on our trading partners, I am confident that we will be able to conclude the current round of trade talks with a more open world trading system which benefits us and all other countries in the years ahead.

Some agricultural trade experts say that agricultural trade, because of its close relationship to domestic farm policies, will be changed only in response to domestic pressure and not to the "carrots and sticks" of multilateral trade negotiations. The United States pushed hard for meaningful negotiations on agriculture in the last—Kennedy Round—negotiations. Although tariff concessions on several hundred million dollars worth of trade in agricultural commodities were exchanged, the results were disappointing to many. No lasting progress was made in grains, the key commodity group for the United States. Nor did the meat and dairy groups, which met throughout the Kennedy Round, arrive at positive results.

It is still too soon, even 3 years into the current round of negotiations, to tell if we will be more successful this time around. We continue to believe that agricultural trade can be expanded and liberalized through negotiation. Indeed, we have little choice but to try—and to try hard. There is a clear and compelling need for a degree of "disarmament" in the field of agricultural trade which is unlikely to be accomplished by separate unilateral decision. The costs of agricultural protection around the world continue to rise and we as efficient producers bear the greater burden of these costs. I am optimistic that an agreement can be reached in which governments will be willing to accept constraints on their unilateral actions to the benefit of all countries.

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## U.S. AGRICULTURAL POLICY

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## PERSPECTIVES ON AGRICULTURAL POLICY

(By Wayne D. Rasmussen, Historian, Economic Research Service, USDA)

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The words "agricultural policy" have come to mean for most of us the actions taken by the Federal Government beginning in the 1930's to support prices of farm products. More accurately, the term should reflect all of the policies of the Federal Government respecting farmers and the farm sector of the economy.

If we look at our two hundred years as a Nation, we see that agricultural policy has been important throughout our history. Indeed, while we were still colonies, English agricultural policies led to the American revolution. In 1619, just 6 years after John Rolfe had successfully established a new type of tobacco in Virginia, Great Britain ordered that all tobacco grown in the colonies must be shipped to England. Eventually, most of the commercial farm products grown in the colonies were restricted in the same way—not for the benefit of the colonists, but to enable the British government to tax the products and to benefit from their resale on European markets. At the same time, the colonists were kept, at least in theory, from selling their surplus grain and meat, which England and Europe didn't need, to the French and Spanish West Indies.

The colonists often evaded these restrictions and kept moving west. Some farmers moved west to avoid quitrents, a small, perpetual tax assessed by original grantees on eastern lands. Others moved to the west, searching for more fertile land. Then, in 1763, England forbade all settlement west of the Allegheny Mountains, hoping to protect both their fur trade with the Indians and the interests of British land companies.

When England began to enforce both its trade and land regulations, American farmers rose in revolt. After independence was won by these farmers, their new State governments abolished quitrents and their Federal Constitution outlawed taxes on exports. Westward expansion was encouraged by the Ordinance of 1785, providing for the survey and sale of Federal land, and by the Ordinance of 1787, providing for bringing the settled areas into the Union on equal terms with the Original 13 States.

Our first President, George Washington, proposed that Congress establish a Federal board to encourage agricultural improvement, but nothing was done. Then, in 1860, the new Republican party promised agricultural reform if its candidates were elected to office. In 1862, Congress and President Abraham Lincoln kept these promises.

The policy goal of the new legislation was to promote and strengthen the family farm. The Homestead Act gave 160 acres of unclaimed

public land to any person 21 years of age or the head of a family who would improve that land and live on it for 5 years. The Morrill Land Grant College Act gave public land to each State for a college to teach agriculture and mechanical arts to the children of farmers, mechanics, and others. The Department of Agriculture Act established this new agency to collect and diffuse useful information, as well as distribute seeds of improved varieties of crops to all American farmers. Finally, subsidizing a transcontinental railroad through the Transcontinental Railroad Act would benefit the family farmer by giving him a way to get his products to market.

At about the same time that these laws to encourage family farmers became effective, the Civil War, with its labor shortages, high prices, and unlimited demand, led many northern farmers to change from hand power and oxen to horse-drawn machinery. The transition was made from self-sufficient to commercial agriculture.

During the rest of the century and until World War I, American wheat and cotton dominated world markets. Farm export earnings were helping pay for the industrialization of the Nation. Family farms were becoming more efficient. In the 1870's, large cattle ranches, many of them corporations financed by European capital, were operating in the Great Plains. However, most of them eventually went broke. Very large wheat farms, based upon machinery operated by steam tractors, had a spectacular, if short-lived existence during the same period.

In spite of their successes in production, many farmers felt that Government policies were aimed at cheap food and cheap exports. A number of general farm organizations, beginning with the National Grange in 1867, organized cooperatives and urged Federal control of railroads, warehouses, and business monopolies. Their overall successes were limited, even though members of the new organizations won some benefits.

In 1908, President Theodore Roosevelt appointed a Country Life Commission to report "upon the present condition of country life." The report, when it was issued in 1909, had little immediate effect on agricultural policy. However, many recommendations were eventually accepted. The Commission concluded "that agriculture is not commercially as profitable as it is entitled to be for the labor and energy that the farmer expends and the risks that he assumes, and that the social conditions in the open country are far short of their possibilities." It said farmers lacked knowledge and had limited educational opportunities, the individual farmer was at a disadvantage in dealing with business, good highway facilities were lacking, soils were becoming depleted, and new active leadership was needed.

The Commission also emphasized that there was no adequate agricultural credit system. President Roosevelt appointed a National Monetary Commission, which advocated a rural credit system. Other groups carried out studies. At last, on July 17, 1916, the Federal Farm Loan Act was passed and signed by President Wilson. The act permitted the establishment of both private and cooperative land banks, with financial assistance from the Government. I regard this act of particular importance because it marked the acceptance of responsibility by the Federal Government for establishing and supervising a rural credit system—a major departure in agricultural policy.

The Farm Loan Act was passed just before the United States entered World War I. The Government called for increased production, and the President said "Food Will Win the War." The county agents, appointed as a result of the Smith-Lever Act of 1914, worked with the farmers. The farmers responded. They made money in doing so, and helped win the war. When the war ended, overseas demand declined sharply and in the summer of 1920, farm prices dropped sharply. For the next decade and a half, the trend was steadily downwards. During that time, several major proposals were made for Government intervention.

The McNary-Haugen proposals are the best remembered, perhaps because they were twice passed by the Congress and twice vetoed by President Coolidge. The plan was put together in late 1921 by George N. Peek and Hugh S. Johnson of the Moline Plow Company, a casualty of the agricultural depression. The bill, as first introduced into Congress by Senator Charles L. McNary of Oregon and Representative Gilbert N. Haugen of Iowa, provided for: the segregation of the farm surplus, which was to be sold abroad at world prices; the distribution of operating costs and losses among the growers by an equalization fee; a scrip device to collect the equalization fee from traders when the farmer sold his crop; and a price-ratio provision to determine fair prices. The most obvious objection to the plan was its provision for export dumping. The plan never became law.

The domestic allotment plan, based upon ideas of W. J. Spillman of the U.S. Department of Agriculture, was presented in 1926 as an alternative to the McNary-Haugen proposals. The essential principle of the plan was to pay producers for the part of their crop consumed in the United States, a free trade price plus the tariff on imports, but only the free trade price for that part of the crop exported. Individual producers would be allotted their shares of the domestic market. The plan was advocated by such economic leaders as Beardsley Ruml, John D. Black, and M. L. Wilson. The plan was eventually included in the Agricultural Adjustment Act of 1933.

During the Presidential campaign of 1928, Herbert Hoover advocated a plan to aid farmers in marketing their products as another alternative to McNary-Haugen. The plan became law on June 15, 1929, as the Agricultural Marketing Act. The act established the Federal Farm Board, which aided farmers in organizing cooperative marketing associations and made loans to such associations. It also made loans to wheat and cotton stabilization corporations set up by the cooperatives for the purpose of controlling price-depressing surpluses. A revolving fund of \$500 million was provided for carrying out these functions.

The great depression of 1929 and subsequent years kept the Farm Board from stabilizing farm prices at reasonable levels. It had neither the authority nor the funds to deal with the catastrophe. The Board's last report stated:

Experience with stabilization thus demonstrates that no measure for improving the price of farm products other than increasing the demand of consumers can be effective over a period of years unless it provides a more definite control of production than has been achieved so far.

Yet, in spite of the Farm Board's comparative failure, the Agricultural Marketing Act of 1929 marked the assumption by the Federal Government of responsibility for aiding farmers to attain economic equality with other industries.

The inadequacies of the Federal Farm Board programs, the steadily worsening economic position of agriculture, the determination of farm leaders that something must be done, and a change in administration led to a series of laws reflecting major shifts in agricultural policies. These policies have given direction to Federal agricultural programs for more than four decades.

The first of the new laws was the Agricultural Adjustment Act of May 12, 1933. It was followed by the Tennessee Valley Authority Act, the Farm Credit Act, the Taylor Grazing Act, the Soil Erosion Act, the Soil Conservation and Domestic Allotment Act, the Bankhead-Jones Farm Tenant Act, and the Agricultural Adjustment Act of 1938. The Resettlement Administration and the Rural Electrification Administration were established by Presidential order. Together, these and other laws and agencies affected virtually every aspect of American agriculture.

The Agricultural Adjustment Act, in a sense, has stood as a symbol of this decisive shift in policy. Its goal of restoring farm purchasing power of agricultural commodities or the fair exchange value of a commodity based upon its price relative to the prewar 1909-14 level was to be accomplished through the use, by the Secretary of Agriculture, of a number of methods. These included the authorization (1) to secure voluntary reduction of the acreage in basic crops through agreements with producers and use of direct payments for participation in acreage control programs; (2) to regulate marketing through voluntary agreements with processors, associations of producers, and other handlers of agricultural commodities or products; (3) to license processors, associations of producers, and others handling agricultural commodities to eliminate unfair practices or charges; (4) to determine the necessity for and the rate of processing taxes; and (5) to use the proceeds of taxes and appropriate funds for the cost of adjustment operations, for the expansion of markets, and for the removal of agricultural surpluses.

Congress declared its intent, at the same time, to protect the consumers' interest. This was to be done by readjusting farm production at a level that would not increase the percentage of consumers' retail expenditures going to farmers above the percentage returned to them in the prewar base period.

Wheat, cotton, field corn, hogs, rice, tobacco, and milk and its products were designated as basic commodities in the original legislation. Subsequent amendments in 1934 and 1935 expanded the list of basic commodities to include the following: rye, flax, barley, grain sorghums, cattle, peanuts, sugarbeets, sugarcane, and potatoes. However, acreage allotment programs were only in operation for cotton, field corn, peanuts, rice, sugar, most kinds of tobacco, and wheat.

Important modifications of the act were passed in 1935. Section 22 authorized the President to impose import quotas on farm products when the imports threatened the success of price support or other programs. Section 32 authorized the use of 30 percent of the customs receipts for surplus removal.



The Department had been developing new programs to dispose of surplus food and to raise the nutritional level of low-income consumers. The direct distribution program, which began with the distribution of surplus pork in 1933, was supplemented by a nationwide school lunch program, a low-cost milk program, and a food stamp program, largely financed by Section 32 funds. The number of schools participating in the school lunch program reached 66,783 during 1941. The food stamp program, which reached almost 4 million people in 1941, was discontinued on March 1, 1943, because of the wartime development of food shortages and relatively full employment. It was revived in the 1960's.

The Agricultural Adjustment Program was brought to an abrupt halt on January 6, 1936, by the *Hoosac Mills* decision of the Supreme Court, which invalidated the production control provisions of the Agricultural Adjustment Act of May 12, 1933, that were carried out through contracts between the Federal Government and individual farmers, and financed by processing taxes.

Congress and the USDA turned to combining the objective of promoting soil conservation and profitable use of agricultural resources with that of reestablishing and maintaining farm income at fair levels. The Soil Conservation and Domestic Allotment Act of 1936 was aimed at these objectives. However, production increased, and it seemed that additional legislation was needed. The result was the Agricultural Adjustment Act of 1938. Two new policy concepts were introduced: marketing control as a substitute for direct production control, and an "ever-normal granary" or stored reserve of agricultural commodities to meet national and international needs.

The new features of the legislation included mandatory nonrecourse loans for cooperating producers of corn, wheat, and cotton under certain supply and price conditions—if marketing quotas had not been rejected—and loans at the option of the Secretary of Agriculture for producers of other commodities; marketing quotas to be proclaimed for corn, cotton, rice, tobacco, and wheat when supplies reached certain levels; referendums to determine whether the marketing quotas by the Secretary should be put into effect; crop insurance for wheat; and parity payments, if funds were appropriated, to producers of corn, cotton, rice, tobacco, and wheat in amounts which would provide a return as nearly equal to parity as the available funds would permit. These payments were to supplement and not replace other payments. In addition to payments authorized under the continued Soil Conservation and Domestic Allotment Act for farmers in all areas, special payments were made in 10 States to farmers who cooperated in a program to retire land unsuitable for cultivation. This was part of a restoration land program initiated in 1938. The attainment, insofar as practicable, of parity prices and parity income was stated as a goal of the legislation. Another goal was the protection of consumers by the maintenance of adequate reserves of food, feed, and fiber. Systematic storage of supplies made possible by nonrecourse loans was the basis for the Department's Ever-Normal Granary plan. Both section 22 and section 32 were continued.

The basic concepts of the act of 1938, although the act was modified many times, were still in effect in 1976. Over the years, the eligibility

of commodities, the levels of price supports, the handling of stocks, and the techniques for withholding land from production were all discussed and were subjects for legislation. However, only three truly different shifts in direction from the concepts of the 1938 act have occurred.

The first major shift came with World War II and its seemingly unlimited demand for farm products. The large stocks of wheat, cotton, and corn resulting from CCC takeover of defaulted price support loans, which had caused criticism of the Ever-Normal Granary, became a military reserve of crucial importance after the United States entered World War II. Congress increased the loan rates for cotton, corn, wheat, rice and tobacco on May 26, 1941. Peanuts were added to the list and rates were again raised in 1942 and 1944, and the Department relaxed acreage controls. The sharpest break with previous price support policy came, however, with the "Steagall Amendment" of July 1, 1941. The Secretary of Agriculture was directed to support the prices of "nonbasic" commodities for which increases in production were deemed desirable. These supports, at high levels, were to continue for 2 years after the cessation of hostilities. The commodities were: manufacturing milk, butterfat, chickens, eggs, turkeys, hogs, dry peas, dry beans, soybeans for oil, flaxseed for oil, peanuts for oil, American-Egyptian cotton, Irish potatoes, and sweetpotatoes.

This turn-around in the price support program to secure increased production was generally regarded as successful. The continuation of the higher levels for 2 years after the cessation of hostilities gave the Congress and the Department an opportunity to consider alternatives to the act of 1938.

On April 7, 1949, Secretary of Agriculture Charles F. Brannan presented the Department's views on national agricultural policy. His proposal has been known since as the Brannan Plan. The plan proposed (1) to substitute an income standard, based on a 10-year moving average, for the parity price-support standard; (2) to support the prices of major commodities at full income-standard levels, either by loans or direct payments; (3) to support the incomes of perishable commodity producers by direct payments of the differences between the market prices and the established support prices; (4) to restrict supports to large-scale farmers to what an efficient family farm unit would produce; and (5) to require that farmers abide by approved conservation practices and necessary production and marketing controls or forfeit the program's cash and loan benefits.

The Brannan Plan was debated both in and out of Congress. Much of the debate centered about the proposal for supporting the incomes of growers of perishable commodities by direct Government payments when necessary, particularly when the possibility of extending direct payments instead of loans to producers of storable commodities was added. The proposed high levels of support were also criticized. The Brannan Plan never became law, but a quarter of a century later, it was still being discussed. Some of its provisions have been adopted. Wool was long supported by direct payments, and there are limitations on payments to large-scale producers. Limits on payments to large producers of upland cotton, wheat, and feed grains were estab-

lished in 1970. More recently, the Agriculture and Consumer Protection Act of 1973 related support prices more closely to world prices and cost of production rather than to parity prices, and, through a system of "target" prices at a higher level than "loan" prices, made direct payments to producers a possibility. The controversial aspect of the Brannan Plan which has not yet received serious consideration is tying support prices to a farm income standard.

Congress passed the Agricultural Act of 1949 instead of the Brannan Plan. The new law, an amendment to the Agricultural Adjustment Act of 1938, was in the tradition of the earlier act, with price supports at higher levels. During the 1950's and the 1960's, legislation concerning levels of price support and the withdrawal of land from cultivation dominated agricultural policy. Surpluses accumulated during much of this period.

The policy question facing the Nation was how to dispose of the surpluses without causing disastrous declines in farm prices. One possibility was to increase foreign exports. The Agricultural Trade Development and Assistance Act, better known as Public Law 480, was approved by President Dwight Eisenhower on July 10, 1954. This act has served as the basic authority for the sale of surplus agricultural commodities for foreign currency, to make shipments for emergency relief, and to barter farm products for strategic material.

President John F. Kennedy's first executive order, after his inauguration on January 20, 1961, directed the Secretary of Agriculture to expand the program of food distribution to needy persons. This was done immediately. A pilot food stamp plan was also started. In addition, steps were taken to expand the school lunch program and to make better use abroad of American agricultural abundance. Public Law 480 shipments were increased substantially. Food aid to India in 1965 and 1966 was of tremendous importance in alleviating famine conditions.

The surplus problem persisted, however, until 1972, when subsidized sales of U.S. wheat to the U.S.S.R. virtually cleaned out American storage bins and sent world wheat prices to record heights. Additional negotiated grain sales to Russia, as well as to other nations, have kept surpluses from accumulating.

The end to the surpluses overhanging the American market made possible a new policy so far as farm legislation is concerned.

The Agriculture and Consumer Protection Act of 1973 placed its emphasis on production to respond to "ever-growing world-wide demand for food and fiber." The Secretary of Agriculture proclaimed that the legislation represented "an historic turning point in the philosophy of farm programs in the United States." The fundamental difference was its emphasis on maintaining or increasing production in contrast to earlier programs to curtail production of wheat, corn, and upland cotton.

A new concept of target prices was introduced which was only to be used when market prices fell below the target levels. Payment rates would be equal to the amount by which market prices fell below target prices. However, payment rates could not exceed the difference between target prices and price support loans. Payments were not to be made as they had in earlier programs when market prices were

high. Target prices for 1974 and 1975 were set at 38 cents per pound for upland cotton, \$2.05 per bushel for wheat, and \$1.38 per bushel for corn with reasonable rates to be set for grain sorghum (and barley if designated) in relation to the rate for corn. In the setting of target prices, the parity formula was not used as it had been in previous programs.

Target prices for the 1976 and 1977 crop years would be the 1975 target prices adjusted by an index of production costs (production items, such as fertilizer and gasoline, interest, taxes, and farm wage rates) published by the Department and changes in productivity. Productivity was to be measured by comparing the most recent national 3-year average for each crop with the 3-year average ending with the preceding year.

In addition to authorization for payments to producers when prices did not reach target levels the act provided for loans to producers at levels below target prices. For loan rates the parity concept as well as a price level per bushel was used to set the limit on the Secretary's discretion. In the case of wheat the loan level was to be not less than \$1.37 per bushel and not more than 100 percent of parity as determined by the Secretary to be appropriate, taking a number of factors into consideration. For corn the loan was to be at a level not less than \$1.10 per bushel nor more than 90 percent of parity, as the Secretary determined would encourage the export of feed grain and not result in excessive grain stocks in the United States. The loan rates for other feed grain were to be established in relation to corn. The parity concept was not used in the setting of loan rate levels for upland cotton, which were to be established to reflect 90 percent of the average price of American cotton in world markets for the preceding 3-year period. The total amount of payments to any person under the wheat, feed grain, and upland cotton programs was limited to \$20,000. This did not include loans or purchases.

The Secretary was directed to determine and apportion national acreage allotments for wheat, feed grains, and upland cotton. Authority for set-asides of cropland was provided as a condition of eligibility for loans, purchases, and payments for wheat, feed grains, and upland cotton. However, no set-asides have been in effect for those crops since the legislation was passed.

In summary, over the 200 years of American independence, with its varying agricultural policies, farmers have declined from over 90 percent of the working force to less than 4 percent. During that time, consumers have consistently had a reliable supply of farm products at modest cost. Exports of farm products, except for comparatively brief periods such as the 1920's and 1930's, have supplied substantial amounts of foreign exchange. It and capital from agriculture have helped build American industry.

At times, though, farm policies of the American Nation have moved from near neglect to the encouragement of family farming and concerns about economic equity for farmers. When our Nation was founded, the onerous regulations of the British government were abolished, and westward expansion was encouraged. Major agricultural reforms, aimed at promoting family farms, took place in 1862.



Congress passed and President Lincoln signed the Homestead Act, the Morrill Land Grant College Act, the Department of Agriculture Act, and the Transcontinental Railroad Act. Then, for half a century, except for encouraging agricultural experimentation to advance the application of science in agriculture, the Federal Government was virtually without an agricultural policy.

The farm depression of the 1920's led to the establishment of the Federal Farm Board, mandated to relieve the depressed farm price situation by bolstering the role of cooperatives. Without authority to control production or marketing, however, the Board could not halt the decline in farm prices.

In 1933, the Agricultural Adjustment Act for the first time provided the machinery for adjusting production to meet demand. It was followed by a series of laws designed to better the lot of the American farmer and to preserve the family farm as the dominant agricultural situation. With varying successes and failures, this legislation and resulting programs have been modified to meet alternate conditions of depression, war, and prosperity. In this changing and sometimes turbulent environment, family farms have managed to remain the mainstay of American agriculture. With their remarkable ability to cope, they will no doubt remain in this role for some time to come, provided future policies are reasonably responsive to their needs.



# AGRICULTURAL AND FOOD POLICY BEYOND THE AGRICULTURE AND CONSUMER PROTECTION ACT OF 1973

(By J. B. Penn,\* Agricultural Economist, Economic Research Service, USDA)

The quadrennial debate on agricultural policy will begin in earnest in the next few weeks. Some people have suggested that 1977 will prove to be a "watershed" year in our domestic policy deliberations. Such a distinctive period is reached every now and then over time. A look back over the history of agricultural policy suggests previous such periods occurred in 1933, 1949, 1962, and now, perhaps 1977 will be another.

Three key factors which could make 1977 a year of distinction include: (1) the unusual or unique economic circumstances in which we presently find ourselves, (2) the fundamentally changed policy environment for agriculture and food, and (3) the convergence of major agriculture and food policy areas requiring congressional attention.

I propose to organize my brief remarks today around these three key factors and to discuss some of the primary considerations seen to be emerging as the agricultural and food policy debate commences in earnest.

## THE ECONOMIC SETTING

First, I turn to the economic setting.

The period since 1970 is especially important to understanding the issues currently emerging. A series of exogenous shocks have buffeted the food and fiber system in this decade. These began with the corn blight and drought in 1970. The imposition of wage and price controls and the first devaluation of the dollar followed in 1971. In 1972 came the first of the now famous Russian grain sales, which led to a drawing down of our grain stocks and rapid increase in prices. Partially in response, the production controls that had been in effect for nearly two decades were relaxed for the 1973 crop to permit greater production. But because of timing, they were of limited effectiveness.

It was during this period of hastily encouraged production increases and lenient controls, but with a mind-set fashioned from over two decades of surpluses, that the Agriculture and Consumer Protection Act of 1973 was being developed.

The 1973 Act is largely oriented to providing lower bounds for farm product prices (hence incomes) through loan rates and target prices

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(supply control provisions were retained but have not been used). Yet the economic situation prevailing since passage obviated the need for these provisions. The major occurrences since its passage are familiar to most of us here. The United States experienced a poor grain harvest in 1974 due to a wet spring, a dry summer, and an early frost. Our grain stocks were further depleted due to this shortfall. While we had record crops in 1975, the Russians experienced a record low harvest and again purchased large quantities of U.S. grain. It is only following the current crop that our domestic stocks are expected to attain levels above the necessary pipeline requirements. Had the aforementioned events not occurred, economic conditions in agriculture could have been far different—perhaps much closer to those for which the 1973 Act was designed to handle.

Reflecting back, there are three significant occurrences since passage of the 1973 Act that have most affected the agricultural economy and led to the wide variability in farm and food prices. These are (1) the increase in our agricultural exports, (2) the elimination of our grain reserve, and (3) the disappearance of our land reserve.

In 1975, one-half of our wheat, rice, and soybeans, a third of our sorghum, and a fourth of our corn was exported. Exports totaled \$22.5 billion in fiscal year 1976, a record high for the sixth consecutive year. Our agricultural exports played a key role in offsetting the bill for petroleum imports, allowing an overall U.S. balance of trade surplus of \$4 billion to be attained.

By the beginning of the 1975/76 crop year, world grain stocks had declined to near 100 million tons (draw down from the 165 million ton average of 1960–71), scarcely more than pipeline levels. U.S. grain reserves constituted the bulk of the world reserves averaging 107 million tons in the 1960–71 period. But at the beginning of the 1974/75 crop year these were down to near 20 million tons.

The Nation's cropland has long been thought to be around 360 million acres—with a surplus capacity of about 60 million acres, the peak amount withheld by Government programs in 1972. But when this reserve was fully released in 1974, only 32 million acres returned to production. In 1976, plantings comprised 346 million acres, still a return of only 41 of the 60 million acres. The remaining acreage was known to be comprised of fallow, uneconomical small plots, marginal cropland, overmeasurement, etc., land that might return under the right economic incentives. The point was clear, however, that the short-run land reserve was less than commonly assumed.

An added emerging concern is the rate of productivity growth in agriculture. Several studies have recently examined this question, the most notable recently issued by the National Academy of Sciences. The implications of slowed productivity growth are ominous—particularly when coupled with the decline in grain reserves, the disappearance of the land reserve, and the foreboding world weather conditions which many now foresee. With the reserves drawn down and the land reserve released for production, there presently is little flexibility in the system to adjust to rapid changes in demand and supply conditions. The result has been large fluctuations in prices.

This brings us then to the rather unique present period. There is more uncertainty about the future direction of the agricultural econ-

omy now than perhaps at anytime in the past quarter-century. The current conditions are unfamiliar to us. We have little or no historical perspective into which to cast our present state. Is agriculture again headed for a period similar to the fifties and sixties? Have conditions really changed as some people claim with agriculture in a fundamentally new economic environment domestically and in world markets? Or, are we to experience some of both extremes every couple of years? For what kind of economic conditions will we be developing policies for agriculture?

#### THE CHANGED POLICY ENVIRONMENT

Just as there have been unprecedented changes in the economic climate, significant changes have also occurred in the policymaking environment for agriculture and food. Not long ago, the interest in the agricultural policy was confined to the general farm organizations, a bipartisan group of congressmen from the Midwest and South, and the U.S. Department of Agriculture. Their interests were mainly limited to price and income policies directed to the farm level.

The past 4 years, however, have brought a massive world consciousness-raising about the importance of food. We are all familiar by now with Don Paarlberg's oft-quoted speech of nearly 2 years ago signaling a change in the policy agenda; with the theme that the policy process is different; and that agricultural policy may now be subsumed under the spreading banner of "Food Policy." Most farmers now know that they no longer exclusively control the rights to agricultural policy. The subject is attracting widely diverse participants ranging from foreign policy specialists to consumers and organized labor. Their attentions are focused very broadly—not just on production and marketing. They extend to food quality, safety, environmental impact, domestic food assistance, and world hunger. For agricultural policy, a key question is whether the new participants will remain strong over time with moderating food prices.

Agriculture's role in U.S. foreign policy has now become well-recognized. As the role in overall policy strategy has become more pronounced, conflicts among policymakers with differing objectives naturally arose, signaling a need for greater coordination. This was one of the factors leading to the executive branch reorganization of the policymaking machinery in early 1976.

Another new factor in the policy setting is the changes that occurred with the 94th Congress. The powerful chairmen of several committees were replaced, and the attack upon the seniority system altered the operational procedures of several others. Since committee chairmen must now be elected rather than automatically elevated as under the seniority system, greater compromise over legislation to appease various interest groups can be expected.

Another factor adding to the change in the policy setting will be the complexion of the new Congress. When the 95th Congress convenes, the leadership changes will be the most far reaching in this century. Also, more retirements in the House and Senate occurred than in the past 30 years, and a number of Members were defeated for reelection. This means that in the new Congress, a majority of the House Members and a third of the Senate will be persons who have served in the Congress 4 years or less.

Another relatively new factor in policy whose impact is still largely unknown is the new budget process. Agricultural and food legislation will be considered for the first time since the process has been fully operational. In addition to setting the schedule for new legislation, it will emphasize attention to program costs.

And, of course, short-term uncertainty will exist while the new administration is getting organized and the top officials in the Department are identified and in place. While the general agricultural philosophy of the new administration is known, the specifics are yet to be developed.

While one can still find divided opinion about the potential impact of these changes on the policy environment it appears implausible to suggest that some shift has indeed *not* occurred. The process and content of the 1977 policy debate are likely to be the first true indication of the extent and permanence of the changes.

#### THE MAJOR POLICY AREAS

The Agricultural and Consumer Protection Act of 1973, applicable to feed grains, wheat, cotton, wool, and dairy products, expires at the end of the 1977 crop year. The 2-year Rice Production Act of 1975 also expires in 1977. While peanut legislation was not passed in this Congress, modifications in the existing program will almost certainly be proposed again next session. The authorization for the Agricultural Trade and Development Assistance Act of 1954, popularly known as Public Law 480, expires. In addition, the funding authorization (section 16) for programs under the Food Stamp Act of 1964 also expires.

Thus, in early 1977 the "agricultural policy" debate will coincide with the "domestic food policy" and "foreign food policy" debates. The ingredients are all present to permit 1977 to be the year when Congress could begin to look at the issues in the context of a national food policy, rather than individually as a "farm policy," a "food aid policy," and so on. While omnibus national food policy legislation may be developed, there is not much evidence of movement in this direction as preparations for a replacement bill for the 1973 Act move forward.

The change in the economic setting since 1972 now means that the three formerly distinct policy areas have become more closely interrelated. Policy issues from these areas are now intermingled. When new legislation is considered, the traditional concerns of farm prices and incomes will have to be considered jointly with newly emerging issues.

Price stability has emerged since 1972 as an issue affecting all three policy areas. While consumers were concerned about food prices, farm prices were also of concern. Farmers are not exempt from the redistribution of income and are also subjected to differential impacts. The large grain exports meant higher prices and incomes for grain farmers, but also meant higher input prices and lower net incomes for livestock producers. When higher grain prices lead to a large reduction in the livestock industry (as happened with the cattle industry in 1975), producers can (and did) suffer large capital losses.

With the grain stocks depleted and the land reserve committed, the lack of flexibility in the system meant that increased exports pitted the domestic consumer against the foreign consumer. Also, as exports



increased and food prices rose, those consumers at the low extreme of the income distribution suffered most. Since a larger fraction of their income is spent on food, they suffer relatively larger losses in purchasing power than do the consumers in upper income groups.

These issues all become intertwined—food prices, farm prices, their level and stability; food aid for the low-income consumer; and food aid, trade, and development assistance for foreign consumers. While the redistribution of incomes is a basic economic issue and involves philosophical differences on the most optimal way to handle it, the issues that will be debated when new legislation is considered will likely be much more specific. I will now briefly note the specific issues in each of the three areas as I see them shaping up.

### *Agricultural Policy*

The underlying issue in agricultural policy will likely pit the “market orientation” proponents versus those favoring substantive Government intervention. The issue runs deep, involving philosophical divergences of considerable magnitude as to the most efficient way to allocate the sector’s resources and still obtain the desired social goals.

Alternatively stated, the central issue largely determining the direction of policy over the next several years is whether agriculture is to be viewed as a public utility—a guaranteed rate of return to producers (price floors) but with price ceilings—or as a market-oriented sector with only risk protection against losses from severe market downturns.

These polar positions are obviously extremes, overdrawn to frame the issue. The public debate will not likely even be billed as “free market versus intervention” or even as “agriculture as a public utility,” but that will be a major underlying economic issue and will be manifest in the topical issues.

*Target Prices, Loan Rates, and Allotments.*—Currently, target price and loan rate levels and how to adjust them over time are emerging as key issues. Target prices are currently adjusted by formula taking into account changes in the prices paid for production items and productivity (yields). Loan rates are not indexed and adjustments are discretionary with the Secretary, within ranges specified as percentages of parity and proscribed by law (cotton is an exception).

The underlying question in debating the level of supports is their appropriate role. Are they a device for use only to protect producers from infrequent but severe price declines *or* are they a device to guarantee a return for each producer? Depending upon the level at which loan rates are set, the role of target prices also may be re-examined. With high loan rates, are target prices needed? That is, do we need to continue direct transfer payments to the farm sector, especially the commercial agriculture segment?

Various proposals have been advanced to directly link (index) target prices and/or loan rates to commodity cost of production. It is highly probable that proposals will again be advanced to index these price supports to variable costs or some proportion of total costs.

A related consideration to support rates and commodity programs involves needed updating of acreage allotments. The present allotments are generally based upon production patterns existing in



1959-60 (feedgrains) and even earlier for other commodities (cotton and wheat).

One alternative is merely to reallocate allotments based on a more recent period. This would reflect some of the changes that have occurred in agricultural production, especially the geographic shift of some crops into areas of greatest advantage. Proposals also exist that would in effect eliminate allotments by making all current production eligible for support loans, target price deficiency payments, and disaster payments.

*Reserve Grain Stocks.*—The present target prices and loan rates provide a price floor, protecting the producer against calamitous downside risk. However, there are no corresponding price ceilings on raw farm product prices and consequently, food costs. Uncertainty is added to the system by the ad hoc use of export embargoes when food prices appear to be rising beyond acceptable levels and possibly fueling inflation. A grain reserve is widely offered as a means to achieve price stability through moderating the peaks and valleys in price movements, while allowing price to allocate resources within some range.

While consumers would likely favor such stability, producers have traditionally opposed stocks, remembering the price-depressing effects of high stocks in previous times. However, a weakening of exports demand could lead to some softening of this position. Producers might favor withdrawal of supplies from the market to establish some type of non-Government reserve, and bolster prices in the short run.

The pragmatic questions involving reserve stocks for domestic price stability really revolve around mechanics—whether the reserve is to be Government or producer held, and whether it is to be tied to other support programs. Questions which highlight the complexity of grain reserve management include:

- (1) How to acquire and release stocks? How to specify the purchase and sales prices and how far apart should they be (how much stability)? Stability around what level?
- (2) How to adjust purchase and release prices over time?
- (3) What is the appropriate size and composition of the buffer stock?
- (4) Where, how, and by whom should the stocks be stored and held?
- (5) What are the tradeoffs among stock size, acquisition and release price spread, Treasury costs, market price variance, and market efficiency?

*Disaster Payments—Crop Insurance.*—Producers now receive protection from natural disasters primarily from two major programs—Federal Crop Insurance Corporation (FCIC) insurance and the Commodity Credit Corporation disaster payment program authorized by the 1973 Act. Various proposals will likely be made to modify these programs. These could include expanding the FCIC coverage and discontinuing the disaster payments program. Government reinsurance of private insurance company offerings, and forms of producer-Government cost sharing insurance programs. Many producers have benefited from disaster payments and they will be hesitant to give them up without something as a replacement.

*Harmonizing Commodity Programs.*—Other issues will be attempts to incorporate the rice, peanut, and ELS cotton programs into the same program format as that for the major crops. The rice program is essentially in that format now, but in separate legislation. Little interest is apparent for returning rice to the previous type program.

There will be pressure to change the peanut program next year. The bill introduced (but not passed) in the past Congress would alter the existing program by reducing allotments, providing dual-level price supports on "quota" and "nonquota" production, and eliminating production restrictions. The serious consideration of the bill in the 94th Congress is viewed as the first big hurdle in effecting permanent program changes.

*Dairy Programs.*—Dairy programs could be a strong issue, especially as to mechanisms for setting the support levels. The whole area of market orders is coming under increased scrutiny and attracts the attention of consumer groups and consumer-oriented Congressmen. Dairy interests are now seen as more prone than ever before to "trade" with the consumer groups and the "hunger lobby" to retain their programs.

### *Domestic Food Aid Policy*

Originally conceived as a means for disposal of surplus agricultural products and assistance to the needy, the domestic food aid programs have grown far from their original designs. In fiscal year 1976, the domestic food aid programs cost \$7.8 billion in total, with the largest, the food stamp program, costing \$5.7 billion. These programs, administered through the Department of Agriculture, comprised about two-thirds of the Department's budget. Over 45 million people received food aid assistance of some kind—17.5 million receive food stamps and 25.9 million children received aid through the school lunch program.

A primary issue in this area is simply the cost and effectiveness of the programs. Most everyone agrees with the lofty objective of providing assistance "to those who really need it," but deciding upon the criteria for determining who is really in need is the big problem. When the Department earlier this year announced new regulations tightening the eligibility requirements, suits were brought by various groups and the Federal courts overturned the new regulations.

A "food stamp reform" bill was considered in the past session of Congress and created considerable controversy, but no action was taken before adjournment.

A possible legislative dilemma shaping up involves tradeoffs among the agricultural and food interest participants. In the past, with the growing urban Congress, tradeoffs were alleged—support for desired agricultural legislation was obtained from urban congressmen in return for support for "sweetening" the food aid programs. However, most of the recent thrust has been to reduce the cost and restrict the food aid programs, so little opportunity now exists for "sweetening" and such trades. How agricultural legislation may be affected remains to be seen.

### *Foreign Food Policy*

The expiration of Public Law 480 will provide a forum for discussion centering on our foreign food policy. Three major focal areas are:

(1) the economic impact of allowing free access to our markets, (2) food aid, and (3) agricultural development assistance.

Allowing free access to our markets raises a number of issues including price stability and domestic and international commodity reserves, export controls (embargoes), trade agreements, trade liberalization negotiations, and others. During the decades that we held large grain stockpiles, we were able to moderate price swings both nationally and internationally. Now that we no longer have the protection of huge reserves, U.S. farm and food prices are directly influenced by the international market.

United States food aid programs—specifically Public Law 480—originally resulted from surpluses, especially of grains, which built up during the 1960's. For many years, Public Law 480 programs were consistent with our commercial objectives for agricultural exports. Through adjusting terms—use of the local currency, credit, and commercial sales—effective prices were tailored to the customer's financial and security status.

However, with strong demand, negligible stocks, and high prices, there is now little incentive to move as much food under Public Law 480. Therefore, political support for food aid has waned somewhat on Capitol Hill. Considering the large and growing bill for petroleum imports and that our agricultural exports about offset this bill currently concessional sales or grants in a U.S. food aid program will probably not provide the volumes to recipients that were provided in the past.

Policy questions to be resolved relate to the future extent of our ongoing aid programs, obtaining a wider sharing of food aid efforts, and the ultimate objectives of food aid.

Because of our size and expertise, there will be a continuing heavy demand on the U.S. agricultural and scientific community to participate in technical cooperation programs. While aid to help others increase their food production is altruistic, it may lead to conflicts, such as occurred recently with the palm oil imports. Others argue that it is in our own best interest over the long run to provide development assistance. The nature and extent of such assistance is thus an issue for resolution.

#### SUMMARY

The convergence of the broad policy areas in 1977 relating to agriculture and food presents the Congress a rare opportunity for forging at least the basic framework of a national food policy. Whether this opportunity is seized depends upon further economic developments and the degree of involvement of both the new and traditional participants in the policy process. At present there appears to be little movement in this direction. Even if the areas continue to be treated separately, growing economic interdependence requires more joint consideration than ever before. This suggests that policymakers and the public will require more economic information of greater complexity, increasing the burden on economic analysts, the Extension Service, and other public agencies. It is a formidable challenge that will require our best efforts.

## EMERGING POLICY ISSUES

(By Dr. Don Paarlberg, Director of Agricultural Economics, USDA)

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The newly elected Congress will soon be in town. One of their first tasks will be legislation for the major farm commodities.

Legislation is expiring for wheat, corn, cotton, rice, wool, and Public Law 480. Also expiring is legislation that permits base plans for Class I milk. There may be an effort to require the building of a food reserve. In addition, there may be efforts to legislate a sugar program. And there may be revived efforts to change the peanut program, although that is permanent legislation. There may also be an effort to change the tobacco program, which is permanent legislation.

Rather than plunge directly into a discussion of the issues before us, I shall first sketch out the present position and how we got there. We may learn something by going through this process.

We got into legislation for farm commodities more than 40 years ago, during the Great Depression. The diagnosis, correct at that time, was that American farmers could not make a profit at the then-prevailing world prices. Our costs were too high and prices were too low. The prescription was to raise the level of farm prices for the major crops. This objective was pursued by restricting production.

We thus deliberately boosted domestic price levels above prices prevailing in the world market. The results, pursued for 40 years, were these:

1. We priced ourselves out of world markets and denied ourselves the market growth that might have been ours.

2. Our artificially-boasted prices speeded up the advance of technology and increased yields, making necessary deep acreage cuts. In 1972 we held out of production 62 million acres; 18 percent of our cropland.

3. Acreage limitations were painful, and mandatory restrictions proved unacceptable for most crops. So we began paying farmers for nonproduction. In 1972 these payments totaled \$3½ billion.

4. The disinclination to accept tight supply controls resulted in piling up large carryover stocks, which hung over the market. The result was a large measure of market stability, essentially at the support level. The price floor tended to become the ceiling.

5. Such farm benefits as the system generated tended to accrue to the producers on a per-bushel or a per-bale basis, thus conferring its greatest help to the large producers whose incomes were already above the average farm and nonfarm level.

6. The system did indeed hold farm prices above competitive levels.

Now I shall make a subtle but very important point. We economists read from Alfred Marshall (and most of us believe it) that in the long



run the price of a commodity tends to equal its cost of production. As we were taught this principle, we came to think that causation lay with production cost, and price was the result. But the experience of 40 years teaches us that causation can flow in the opposite direction—that a price held substantially above competitive levels for a long period can bring about an increase in production costs. How does this happen? The use of resources at less than capacity is inefficient, and increases costs per unit. Artificially high commodity prices became capitalized into land values, a benefit to the generation on the land when the law was passed but a cost to those young people who wanted to start farming. Thus, after the elapse of some years, costs mounted up to meet the artificially high prices, negating much of the intended effect.

There came growing dissatisfaction with this system. But we had become very dependent on it. It was clear to most, if not to all, that abandonment of the program would result in excessive supplies, sharply-reduced prices, depressed farm incomes, and a severe drop in land values. We were afraid to dismount from the tiger. Regardless of whether or not it had originally been true, the diagnosis of 40 years ago—that American farmers could not compete in the export markets at world prices—had become self-fulfilling.

This was the situation when the Congress passed the Agricultural Act of 1973. The major commodities treated by that Act were wheat, feed grains, and cotton. The central features of the Act were these:

1. Target prices and a deficiency payments scheme were substituted for the earlier plan of supporting prices directly.

2. A large measure of discretion was provided to the Secretary of Agriculture with respect to production controls. There was provision, at the option of the Secretary of Agriculture, for setting aside considerable acreage from which no crop could be harvested, in the event that supplies became excessive. Also the legislation gave discretion in setting loan rates.

Thus the Act embodied what has come to be known as “market orientation.” It was passed with support from both political parties and with concurrence on the part of both the Executive and the Legislative branches.

The President signed this Act into law. Scarcely was the ink dry before there occurred a series of phenomenal and unforeseen events. Poor crops in the world, plus a worldwide inflationary upsurge, carried farm prices far above the loan and target levels. The Secretary of Agriculture used the authority given him by the Congress to suspend acreage controls. Thus our agricultural policy became market-oriented.

*Without intending to do so, and without major confrontation, and with relatively little pain, we were escalated out of a policy we had pursued for 40 years!*

I have spent many years contemplating how we might disengage from our restrictive agricultural policies. But I had never envisioned the scenario that actually occurred. We dismounted from the tiger with less of a jolt than most expected.

Consider for a moment how good the experience has been, associated with the removal of restrictions. (Note that I say “associated with” rather than “caused by.” The distinction is relevant; there were multiple causes for the events of recent years.)



Farm incomes during the 4 years of "market orientation" averaged, in real terms, 4 percent above the level of the 4 years preceding.

Agricultural exports, during these 4 years averaged, in tonnage, 46 percent above the previous 4 years. These exports helped generate the foreign exchange with which to pay for our oil imports and helped keep the dollar strong.

Taxpayers have been relieved of the burden of paying for non-production.

Consumers welcome full production, which they rightly associate with an abundant supply of food.

Business firms welcome the larger volume associated with current policies.

Laboring people favor the additional jobs that come from full resource use.

Of course, the policy change did not occur for certain crops: peanuts, tobacco, or long-staple cotton. And it occurred only partially for rice. But it did occur for the major crops.

Most people are now convinced that we *can* compete in world markets with the major crops. Our endowment in soil, climate and topography is the world's best. Our farm people are unexcelled in the level of their technology and in their managerial skill. Our institutions—credit, education, research, transportation, and marketing—are the envy of virtually all our foreign visitors.

This new feeling, that we *can* compete, can also be self-fulfilling. It can lead to actions that bring about the assumed postulate. Such is the power of an idea!

This is the setting within which the Agricultural Act of 1977 comes up for consideration.

The critical question, as I see it, is whether we continue with a market-oriented policy or whether we revert to artificially-high prices, burdensome surpluses, and production controls. As you can judge from my comments, I think it is important that we continue the course upon which we have ventured.

I think it is unlikely that we would *deliberately* return to the policies from which we have now escaped. Consider the good experience we have had in agriculture under the new policy. Consider that we have just come through a Presidential campaign in which neither of the candidates advocated production controls. Consider that the remaining advocates of the old order have been reduced largely to the producers of tobacco, and a few other crops, plus some dedicated control advocates among the producers of wheat, corn, and cotton. Consider the growing power of the consumers, who are unlikely to support a return to limitations on output. Consider that concern about the adequacy of food supplies is still widely prevalent, and finds reduced production ideologically objectionable.

If we revert to the policies we have just escaped, it is likely that we do so *unintentionally*. We escaped from them unintentionally; we might again embrace them the same way!

This is how it might occur:

1. Out of a desire to help farmers, we might get the loan levels and the target prices too high.

2. We might thus price ourselves out of world markets and again pile up surpluses.

3. To minimize such a pileup and to avoid the costly payments associated with excessively high target prices, we might again feel impelled to restrict output.

We would then come full cycle and, without wishing to do so, return to the programs from which we have escaped.

How might such a development be averted?

On the one hand are those people who fear that any increase in loan levels, and in target prices could plunge us back into surplus stocks, acreage restrictions, and costly payments. On the other hand are those who think the targets and loans are far too low and should be sharply increased.

Fortunately there is room for compromise. The inflationary surge of the last 4 years has carried prices substantially and, I think, permanently, above the levels that prevailed before the economic storm struck. The trick will be to get the loans and the target prices up to levels high enough to provide assurance against temporary and unwarranted sharp price declines, and yet keep them low enough so that we don't back into the problems from which we have escaped.

And the finding of this optimum point should not be an issue with farmers on the one hand and non-farmers on the other. Farmers have an interest in discovering this optimum level. For that matter, non-farmers have a similar interest. Both city and farm people would lose from tight-fisted policies that deny safeguards to farm people on the one hand and open-handed policies that lead to a return to old programs on the other.

The Department of Agriculture will be working hard during coming months, trying to identify optimum levels for both loans and target prices. And we shall consider both the short-run and long-run aspects of the question.

What I am saying is that the politics of confrontation, which characterized farm policy debates for so many years should not be revived for the Agricultural Act of 1977. Farmers and non-farmers alike would only lose.

There is another—and related—issue to which I shall address myself before concluding. That is the matter of grain reserves. My comment is that there is ample authority, already in the law, to serve the public interest so far as grain reserves are concerned.

Under present legislation and with the options available under the charter of the Commodity Credit Corporation, it is possible for the Secretary of Agriculture to:

- Provide incentives to farmers to carry stocks of grain under their own ownership.
- Provide incentives to the commercial trade to carry grain, under commercial ownership.
- Purchase and hold grain for the account of the Government.
- Establish loan programs at such levels as to increase the likelihood of Government takeover.

Furthermore, there is authority for the U.S. Government to work out, with other countries, an international system of nationally held grain reserves. This has been attempted but has not been successful.

The Secretary of Agriculture also has authority to use a variety of programs to move grain into use overseas:

Market promotion.

Public Law 480.

CCC credit.

This is a formidable arsenal of tools.

My point is that a Secretary of Agriculture can use these tools, flexibly, in accordance with events as they develop. It is my belief that this can be done better, on a discretionary basis in line with economic events, than can be prescribed, beforehand, by the Congress, making decisions before the relevant evolving facts are known.

The Secretary of Agriculture will continue to be subject to pressures from all sides—from advocates of high prices and from advocates of low prices; from pro-storage people and from anti-storage people. It is my view that the rival views on these matters are now more nearly balanced than they have been hitherto, and that a Secretary of Agriculture is likely, in this circumstance, to come fairly close to representing the broad public interest.

As to whether the Congress can specify beforehand, just what our stock-management policies should be, I am inclined to be doubtful. My many years as a member of the Board of Directors of the Commodity Credit Corporation, trying to operate within the specifics of acquisition and release as enacted by the Congress, leaves me with some justified misgivings.

We hear much, these days, about the "Genesis Strategy" drawn from the experience of Joseph in Egypt, over 3,000 years ago, when he laid up supplies out of the seven years of abundance for use during the seven years of short crops that followed. This is a fine story, and it worked out well. It should point out, however, that Joseph had an advance, private long-range crop report from the highest possible authority, the Lord Himself. There is no evidence that the Members of the Congress are on similar terms with the Deity.

The summation of this statement is that we have been wise or fortunate, or both, in escaping from the programs of the past. If we will set aside confrontation politics, there is reason to believe we can hold these gains. If we treat the issue in low key fashion, almost everyone will gain. To draw up again the battlelines of the past can produce nothing but losers.

## THE FUTURE OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

(By Ronald D. Knutson, Texas A. & M. University)

Many people are concerned about the diminishing role and influence of USDA in food and fiber policy decisions. Of equal significance is the fact that many food and fiber related programs are now administered by agencies other than USDA. Examples include commodity market regulation, food quality and safety regulations of FDA, runoff and agricultural chemical regulations of EPA, and the State Departments pervasiveness in matters of international trade, aid, and technical assistance. Many reasons undoubtedly exist for this diffusion of food policy decisions and programs among agencies of government.

Increasingly questions are being raised as to whether USDA can objectively make policy decisions or administer programs in the public interest as opposed to its traditional position of producer and agribusiness advocacy. Unless USDA is able to demonstrate a new mix of public spirited leadership, its role in food and fiber policy will continue to diminish.

It would, however, be unfair to limit my concerns to USDA. The Agriculture Committees of Congress are experiencing the same basic erosion of influence. I expect it is for much the same reason—not because food and fiber policy is no longer important but because we have not adjusted our strategies and clientele to the realities of forces affecting policy today.

Three contemporary examples can be used to illustrate the problem:

1. There is general agreement in the economic community that if President-elect Carter expects to reduce unemployment, some form of wage-price controls, guidelines, or jawboning will be necessary. In the past 8 years as a result of efforts to control inflation the influence of both the Council of Economic Advisors and the Council on Wage and Price Stability on food policy substantially increased. This increase in influence was largely at the expense of USDA.

USDA programs do have substantial impact upon food and fiber prices. In light of this fact, it's time to substantially increase our analysis of the full impact of its policy and program decisions upon food prices as well as the full spectrum of economic variables. These impacts cannot be dismissed, as they sometimes are, by arguing that there is no relation between farm prices and retail prices. We clearly have not given enough attention to the behavior of marketing margins. Yet evidence of sticky margins—particularly when farm prices fall—continues to increase. With anticipated increases in inflationary pressures, the margin and inflationary impact work of the Department will increase in importance. It's time USDA begins taking the leader-

ship in this area lest the position of the USDA in food policy continues to be eroded by the determinations of general economic experts and general economic considerations.

2. Mounting evidence exists that agriculture is becoming more concentrated, more highly integrated, and that its pricing institutions are not keeping up with these changes. To date these problems have been swept under the rug and in some cases covered up.

The jury is still out on whether concentration and integration of commercial agriculture—whether by corporations or cooperatives—is in the public interest. The structuralists say no. The efficiency and coordination advocates say yes. It's time to make an all-out effort to discover the facts and take appropriate action.

Yet questions have from time to time been raised as to whether USDA can be an effective regulator when it comes to structural and pricing issues. The evidence to support such questions is mounting. Ineffective commodity futures, Packers and Stockyards, grain inspection, and Capper-Volstead regulation provide illustrations. USDA leadership and bureaucracy bears the brunt of responsibility for convincing the public that it can effectively carry out its regulatory mandate.

3. During the last 6 months I have had the opportunity to look at the USDA from a different perspective in the National Academy of Science World Food and Nutrition Study. Some hard questions have been asked. Who in the Executive is responsible for continuous assessment of the world food situation? Who is responsible for the development of overall food and nutrition strategy for our government? Where are we going with regard to the world food problem and policies to address it? Who decides how we get there? Answers to these questions should exist. However, they are not readily apparent. There is currently no single visible focal point for such functions.

A new Administration will have to answer these questions. For too long they have been ignored. The Agricultural Policy Committee has not effectively served this function. This is not to say it couldn't. A National Food Council and a stronger USDA have been suggested as alternatives. Which alternative is chosen will have a lot to say about the importance of USDA as an institution in our government 4 years from now.

I am convinced that we need a strong USDA that is firmly in control of our food and fiber policies. For this to happen will require leadership. It will require a realization on the part of the bureaucracy that there is a need to adjust to a rapidly changing clientele, domestic and world economy. To me these issues are even bigger than those involved in the 1977 farm bill.



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## COMMODITY OUTLOOK

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## SITUATION AND OUTLOOK FOR WHEAT AND RICE

(By James J. Naive, Agricultural Economist, Economic Research Service, USDA)

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### THE 1976-77 SITUATION

#### NEAR RECORD CROP; LARGER SUPPLIES

Despite unfavorable weather, the 1976 wheat crop appears to have narrowly missed setting a new record. Responding to strong prices, U.S. wheat growers increased plantings 7 percent to 80 million acres, the largest since 1949. But harsh weather in the Plains caused an unusually large abandonment and total harvested area was up only slightly from the 1975 level. However, yields declined only slightly and total production is just short of 1975's record of 2,134 million bushels.

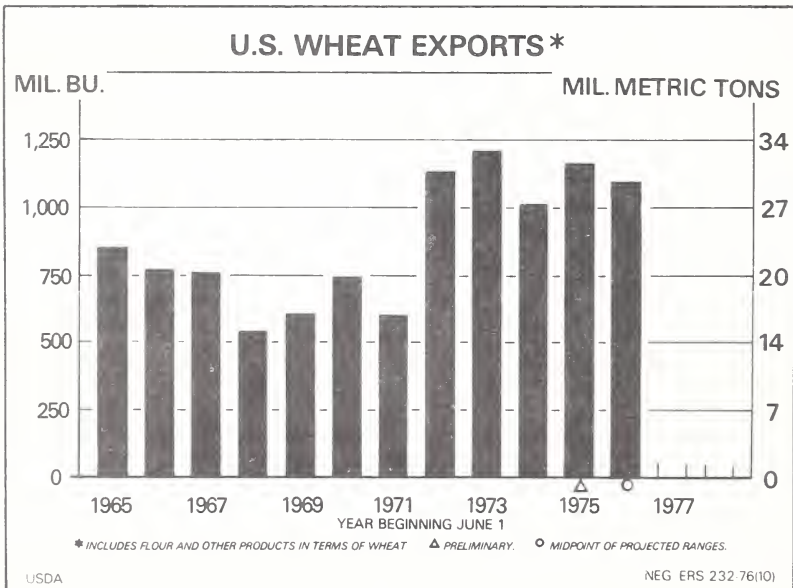
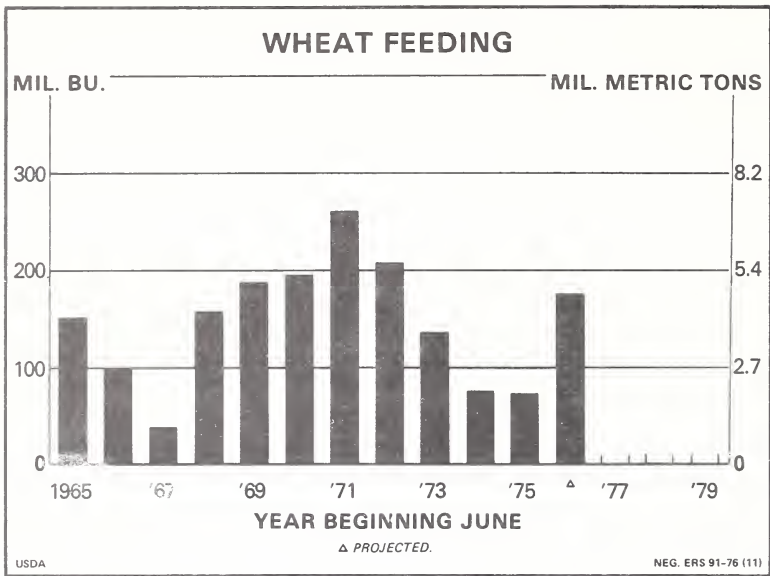
This large crop and a substantially larger carryover last June add to the largest wheat supply since the early 1960's.

#### FEED USE SHOULD REBOUND WITH LOW PRICES

This year could see a wheat feeding revival. As prices declined rapidly in August, the prospects for expanded wheat feeding became prominent. In many feed deficit areas that produce wheat, price relationships favored wheat over other grains for feeding. Also, a substantial amount of sprout-damaged wheat in the Pacific Northwest (PNW) was moved quickly into feeding channels. Feed use for the 1976-77 crop year is currently estimated at 125-175 million bushels compared to about 75 million last season.

#### FOOD USE REMAINS STRONG

Food use of wheat is apparently maintaining some of its strength from last season and remains above year-earlier levels. Total domestic food use is estimated at 188 million bushels for June-September 1976 compared to 186 in the same period of 1975. Food use this large is particularly surprising since it comes on the heels of a 15-million-bushel increase in 1975-76.



The increase in food use seems to be explained largely by the improvement in the economy. Although the response of bread product demand to higher incomes is generally thought to be low or even negative, a large number of convenience foods, especially breakfast foods, are basically wheat products. The demand for these products probably shows a strong response to changes in income. Also, retail

prices of wheat-based foods have moderated in response to lower wheat, sugar, and vegetable oil prices. However, the increase in mill grind is beginning to ease and apparent food disappearance for September was below a year earlier. Therefore, food use for the year is projected down around 2 percent from 1975-76's use, but still above trend.

#### EARLY EXPORT PACE STRONG

Wheat shipments during the June-September period totaled about 400 million bushels, the third heaviest in history. India, Japan, the European Community, Eastern Europe, South Korea, and Egypt accounted for about 55 percent of the total.

The rate of export business is slower than last season, but 1976-77 is likely to be the fifth successive year exceeding one billion bushels. Larger grain harvests in the USSR, India, Pakistan, North Africa, and Brazil suggest that world import demand may ease some during 1976-77. Our increased supply, a record Canadian crop, and a prospective bumper crop in Argentina indicate stiffer competition among exporters. Still wheat price levels and relationships with other grains may influence some countries to step up wheat imports either directly or as a substitute for feed grains.

U.S. exports are forecast to fall in a range of 950 to 1,050 million bushels compared to 1,173 million bushels (32 million metric tons) in 1975-76. Bolstering U.S. wheat exports this season are the Public Law 480 and CCC short-term commercial export credit programs.

#### WHEAT PRICES HIT 3-YEAR LOW

Concern over new crop prospects, a rain-delayed harvest, tight farm holding, and technical support from corn and soybean prices led to unusual price strength for wheat during June and July. But this quickly evaporated after harvest moved into full swing and it became clear that the United States and other major producing countries would harvest large crops. This supply prospect dragged average prices at the farm from \$3.42 per bushel in mid-June to only \$2.59 in mid-October, the lowest level since July 1973. In many areas, wheat prices were at levels competitive with other grains for feeding. Thus, wheat prices are influenced more than usual by developments in feed markets. On balance, it appears that U.S. farm prices may average between \$2.60 and \$3.20 compared to \$3.52 per bushel last season.

Feed markets have eased this fall when harvests moved into full swing and wheat prices followed that path. Wheat prices may have bottomed out and could follow the more normal pattern of seasonal strength through the remainder of 1976-77. Factors that will influence price patterns include:

- Farmers' storage and market strategies and the influence of the increased loan rate on these strategies.

- The pattern of foreign purchases. Foreign buyers appear to be stringing out their purchases more evenly.

- Stepped up export sales activity under Public Law 480 and CCC credit programs.

- A relatively strong feed grain market.

The final outcomes of the wheat harvests in Argentina and Australia which begin in November.



The size and condition of winter wheat plantings in the United States, Europe, and the USSR.

The size of the Asian rice crop since shortfalls in rice production are often compensated for by wheat imports.

#### WHEAT LOAN RATE INCREASED

On October 13, the USDA announced loan rates for 1977 crops of wheat, feed grains, and soybeans. The increased rates are immediately and retroactively applicable to 1976 crops as well. For wheat, the loan was raised to \$2.25 per bushel from \$1.50. This increase will help farmers maintain a more even pattern of marketing by providing additional funds for their operations through the loan program. The anniversary provision that allows farmers to keep their grain under loan about 12 months after placement remains in effect.

Loan activity, while still relatively low, is running well ahead of last year's levels. As of September 30 a total of 44.0 million bushels had been placed under loan compared to 18.8 million bushels in 1975. As recently as 1971, placements at this time of year were 250 million bushels. The increased loan rate will probably encourage more farmers to place wheat under loan. In fact, a modest pickup in loan activity since the announcement is already evident.

#### WHEAT OUTLOOK BY CLASS

##### HRW CROP DOWN BUT SUPPLY STILL LARGER

The 1976 Hard Red Winter (HRW) wheat crop of 954 million bushels was the third largest, but nearly 10 percent below the record 1975 crop. The nearly 2.5-million-acre decline in harvested area this year was the reason for lower production since yield per harvested acre changed little.

An increase in stocks last June still brings total supply of HRW about 5 percent above last year's level. Prospects concerning HRW marketings lead to the expectation of another large increase in carryover. Exports are expected to be off significantly from last season's 540 million bushels because of improved wheat crops around the world. Domestic use may increase moderately since prices point toward more wheat feeding. While Kansas City HRW prices were briefly near \$4 a bushel in early July, they have slipped drastically to around \$2.75. Protein premiums for the 1976 crops are much lower than a year earlier reflecting the higher protein content of this year's crop.

##### SRW CROP A RECORD; EXPORTS STRONG

The 1976 SRW crop is estimated slightly above last year's record. Coupled with increased carryover, the 1976-77 supply of around 400 million bushels is 5 percent larger than last year.

Domestic use is expected to be up in 1976-77 largely on the strength of more feeding as harvest prices of SRW were very favorably priced for the feed trough. But exports have been the highlight of the season thus far. Shipments during June-September totaled nearly 100 million bushels, about a third more than last year.

Total disappearance in 1976-77 is likely to be above last year so year ending carryout may not be much different from last season. SRW prices have followed the downhill path of other classes running at around \$2.65 per bushel (Chicago) in early November. But the decline has not been as great as for other classes and the cash differential between Kansas City HRW narrowed. By October, Chicago futures were generally at a premium to options for the Kansas City markets after holding at discounts for a number of months.

#### RECORD HRS CROP HARVESTED

Growing conditions varied widely even within States, but the HRS crop is still a record 415 million bushels, 25 percent above 1975. Increased plantings are the primary reason.

Carryover plus the record harvest will bring the total supply to well over 500 million bushels, about 100 million over last year's level. Larger supplies of HRW and Durum will offer more competition even with high protein HRS priced attractively. Competition from Canada, with its record crop, has dampened our export outlook. The 1976-77 year-end carryover is likely to increase substantially. HRS prices are off \$1 or more per bushel from last year. Premiums paid for higher protein HRS are off around 40 percent from last year's high level, reflecting the good protein characteristics of the 1976 crop.

#### ANOTHER RECORD DURUM CROP

Durum production in 1976, at 136 million bushels, hit another record. Production in traditional northern Durum wheat States was actually off 13 percent. So, this year's record reflects the sharp expansion in acreage and higher yields in the Southwest, especially Arizona.

The sizable carryover from the 1975-76 marketing year will increase total supplies for 1976-77 to 190 million bushels. The record supply of Durum has by far been the overriding influence on prices, which dropped precipitously in August and September. No. 1 Amber Durum at Minneapolis was running around \$3.10-\$3.25 per bushel in late October, compared to \$5.90 a year earlier. Prospects for whittling down these huge supplies are not bright. But mill grind for domestic semolina use should rise since the sharp drop in prices of semolina (100 percent Durum) eliminated the advantage of blending hard wheat flours for pasta manufacturers.

#### WHITE WHEAT SUPPLIES A LITTLE LARGER

The indicated 280 million bushel white wheat crop is only slightly under last year's record. Combining larger carryover stocks with production places total 1976-77 white wheat supplies at 335 million bushels, up a little from last season.

The prospect that foreign and domestic demand will eat into the large supplies and prevent further buildup in stocks is not bright. Exports are not expected to surpass last year's 215 million bushels

and could be down more than 10 percent if Soft Red Winter prices continue to be competitive. Sprout damaged wheat from the wet harvesttime weather will boost feeding.

## WORLD WHEAT SITUATION

### A RECORD 1976 WORLD WHEAT CROP PROJECTED

World wheat projections for 1976-77 indicate increases for production, consumption and ending stocks but reduced trade. World wheat production is expected to total a record, about 15 percent above last year's crop of 349 million metric tons. Consumption for 1976 is projected up 4 percent, and ending stocks are expected to climb almost 50 percent from last year's low level. World trade is projected to be down 5 percent because of good wheat harvests all around the world. In the face of record production and increased carryover stocks, world wheat prices are expected to remain below 1975-76 levels.

### MAJOR PRODUCERS GENERALLY IN GOOD SHAPE

The *USSR's* 1976 wheat production is estimated to reach 95 million tons, up 44 percent over last year's poor harvest and the highest production since 1973. The Soviets have indicated that the total grain crop (wheat, rice, coarse and miscellaneous grains) has reached 220 million metric tons and is approaching the 1973 record of 222 million. This compares with 140 million tons last year.

*Canada's* 1976 wheat crop is estimated at a record 24 million tons, up 38 percent over the last year. And even with wheat stocks on July 31 below average, it will provide Canada's largest wheat supply since 1972-73. Canadian wheat exports for 1976-77 (July-June) are projected at 12.5 million tons, slightly more than in 1975-76.

*Australia's* 1976 wheat production is estimated at 8.7 million tons, down 30 percent from 1975. Dry wheather that persisted from planting time through September delayed planting and reduced production prospects. Rains in September improved soil moisture and benefited winter wheat in all States except Victoria and South Australia.

After a dry start, favorable August weather aided development of small grain crops in *Argentina*. The 1976 wheat crop is projected at 10.5 million tons, up 22 percent over last year and the largest crop since 1964.

## OUTLOOK FOR 1977 WHEAT PLANTINGS

### TO PLANT OR NOT TO PLANT

The 1977-78 season will be the fourth consecutive year that wheat growers have had no planting restrictions. Thus, their decisions on what and how much to plant have been or will be based on market conditions and expectations for wheat and competing crops given other features of the 1977 wheat program that include:

A national wheat allotment of 62.2 million acres, 1 percent

above that for 1976. The allotment would be used as a pay base to participating growers if the national average market price during the first 5 months falls below the established target price, or if growers qualify for disaster payments.

Growers may substitute any nonconserving crops (except those under marketing quotas) or any conserving crop used for hay or for grazing to preserve allotments.

An increased loan rate of \$2.25 per bushel and a prospective higher 1977 target price, perhaps in the \$2.40-\$2.55 per bushel range.

#### OTHER FACTORS AFFECTING PLANTING

Winter wheat growers were facing a decidedly weakened market when making planting decisions during August-October. Prices were at 3-year lows and, what's more, were generally less favorable to other competing crops, a situation which will probably continue even if prices strengthen by spring planting time. Also, new crop futures have started at a much lower level than in recent years.

Weather may have a big say on the size of plantings this fall and spring. Conditions throughout the Plains are the driest in years and winter growers delayed seeding due to lack of moisture. But rains did fall and even though they were not sufficient to replenish subsoil moisture, they generally were enough to get the crop in and off to a reasonably good start—in some areas better than last fall.

While at first glance lower prices appear to be far and away the overriding factor influencing grower planting decisions, there are a number of conditions that could be offsetting:

The need for wheat pasture in the Central and Southern Plains after a dry summer and unfavorable cattle feeding conditions has encouraged winter wheat seeding.

Cropping rotations and double cropping in which wheat is an integral part. Also, much of last year's abandoned acreage was turned into fallow which would normally be planted back this year.

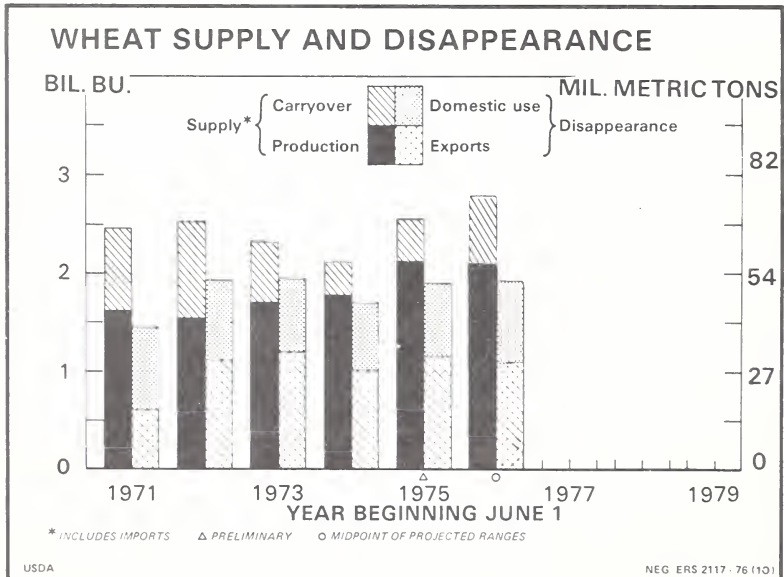
The lack of strong crop alternatives throughout much of the Plains and Pacific Northwest. Thus, even though prices fall, supply response may not since there are no alternative resource uses. In fact, it is possible to have an increase, as was the case last season, as long as short-term or variable costs are expected to be covered.

Spring wheat growers are affected by many of these same factors, and while prices may strengthen by planting time next spring, they are likely to be well under the levels in 1976 as well as weaker with respect to competing crops—barley, oats, and oilseeds—than in recent years.

On balance, plantings for the 1977 wheat crop will likely total near the 80 million acres of 1976. Weather will still be influential for spring wheat and, perhaps more importantly, for how many acres of winter wheat will be harvested.

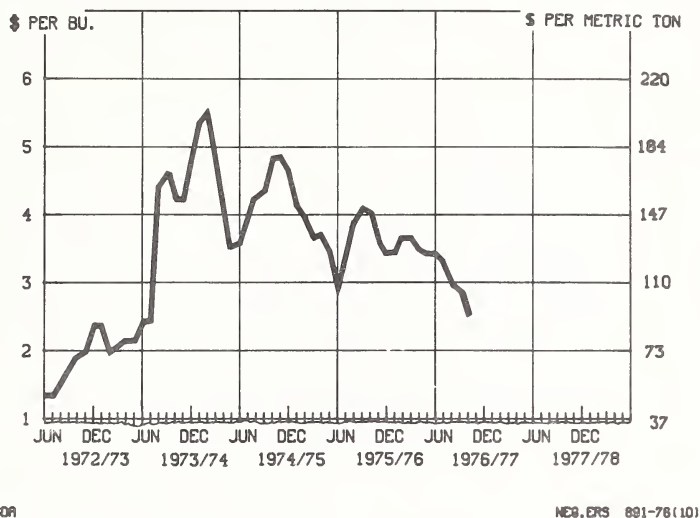
TABLE 1.—ALL WHEAT; WINTER AND SPRING: ACREAGE, YIELD AND PRODUCTION UNITED STATES, 1971-76

Year of harvest	All wheat				Winter wheat			
	Acreage (1,000 acres)		Yield per harvested acre (bushels)	Production (1,000 bu)	Acreage (1,000 acres)		Yield per harvested acre (bushels)	Production (1,000 bu)
	Planted	Harvested			Planted	Harvested		
1971-----	53,810	47,674	33.9	1,617,789	38,060	32,359	35.4	1,144,164
1972-----	54,896	47,284	32.7	1,544,936	42,166	34,840	34.0	1,185,225
1973-----	58,978	53,869	31.7	1,705,167	43,232	38,474	33.1	1,272,744
1974-----	71,354	65,613	27.4	1,796,187	52,354	47,043	29.6	1,390,144
1975 <sup>1</sup> -----	75,095	69,656	30.6	2,133,803	56,163	51,544	32.0	1,651,209
1976 <sup>2</sup> -----	80,239	70,420	30.2	2,126,649	57,747	49,172	31.4	1,542,330
	All Spring wheat				Durum			
	Acreage (1,000 acres)		Yield per harvested acre (bushels)	Production (1,000 bu)	Acreage (1,000 acres)		Yield per harvested acre (bushels)	Production (1,000 bu)
	Planted	Harvested			Planted	Harvested		
1971-----	15,750	15,315	30.9	473,625	2,943	2,864	32.1	91,805
1972-----	12,730	12,444	28.9	359,711	2,592	2,550	28.6	72,912
1973-----	15,746	15,395	28.1	432,423	2,952	2,884	27.2	78,455
1974-----	19,000	18,570	21.9	406,043	4,174	4,099	19.8	81,245
1975 <sup>1</sup> -----	18,932	18,112	26.6	482,594	4,820	4,670	26.4	123,182
1976 <sup>2</sup> -----	22,492	21,248	27.5	584,319	4,740	4,591	29.6	136,057

<sup>1</sup> Preliminary.<sup>2</sup> Indicated as of Oct. 1.



# WHEAT PRICES RECEIVED BY FARMERS

TABLE 2.—WHEAT: MARKETING YEAR SUPPLY, DISAPPEARANCE, ACREAGE, AND PRICES, 1970-77<sup>1</sup>

[Million bushels]

Year beginning June 1	Supply				Disappearance						Ending stocks, May 31		
	Begin- ning stocks	Pro- duc- tion	Im- ports <sup>2</sup>	Total	Domestic use				Ex- ports <sup>2</sup>	Total disap- pear- ance	Pri- vately held <sup>5</sup>	Govern- ment <sup>6</sup>	Total
					Food <sup>3</sup>	Seed	Feed <sup>4</sup>	Total					
1970/71 ---	984	1,352	1	2,337	517	62	195	774	741	1,515	NA	NA	822
1971/72 ---	822	1,618	1	2,441	524	63	260	847	609	1,456	NA	NA	985
1972/73 ---	985	1,545	1	2,531	527	67	207	801	1,131	1,932	NA	NA	599
1973/74 ---	599	1,705	3	2,307	530	84	137	751	1,217	1,968	NA	NA	339
1974/75 ---	339	1,796	3	2,138	521	93	76	690	1,018	1,708	NA	NA	430
1975/76 <sup>11</sup>	430	2,134	2	2,566	559	95	75	729	1,173	1,902	NA	NA	664
1976/77 <sup>11</sup>	664	2,127	2	2,793	550	95	150	795	1,050	1,845	NA	NA	948
				(±10)			(±25)	(±35)	(±100)	(±90)			(±90)

<sup>1</sup> Totals may not add due to rounding.<sup>2</sup> Imports and exports include flour and other products expressed in wheat equivalents.<sup>3</sup> Used for food in the United States, U.S. territories, and by the military at home and abroad.<sup>4</sup> Residual; approximates feed use and includes negligible quantities used for distilled spirits and beer.<sup>5</sup> Not available.<sup>6</sup> Under loan to or owned by CCC; not available.<sup>7</sup> Excludes an abnormally large volume of grain in transit.<sup>8</sup> Projected.<sup>9</sup> Season average price received by farmers as reported by the statistical reporting service.<sup>10</sup> Does not include set-aside or disaster payments. Domestic certificate payments prior to 1974/75; beginning in 1974/75, guaranteed payments under target price program when applicable.<sup>11</sup> Preliminary.

## OUTLOOK FOR RICE—1976-77

## REDUCED ACREAGE ACCOUNTS FOR SMALLER 1976 RICE CROP

As of October 1, the 1976 rice crop was estimated at 112 million hundredweight, 12 percent less than last year's record. The 1976 crop is the first of two crops to be grown under the Rice Production Act of 1975.

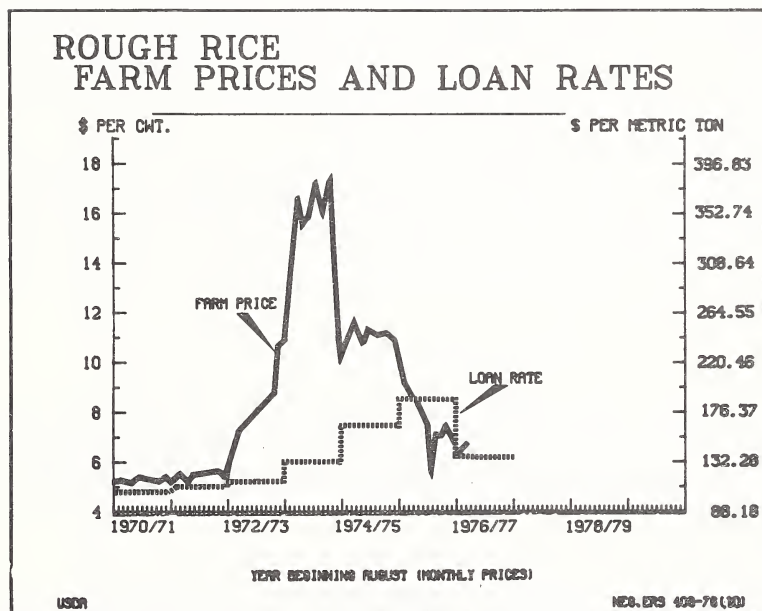
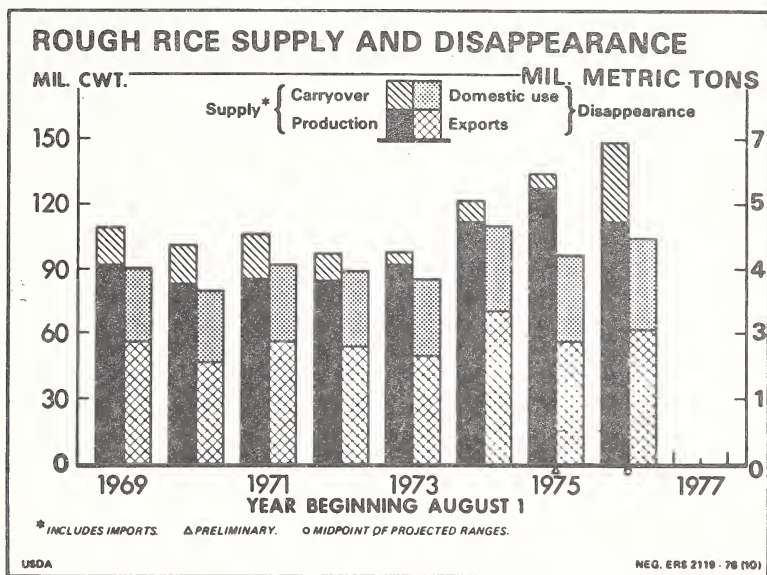
Planting decisions last spring were based on market conditions affecting rice and competing crops and growers' expectations for the future. So with sharply increasing rice stocks, the lowest rice prices in 4 years, and strong soybean and cotton prices, growers reduced rice plantings 13 percent from the 2.8 million acres in 1975. Most of the reduction in acreage was in California, Arkansas, and Louisiana. If production patterns for classes follow recent years, the production decline will be less for long grain rice than for medium and short grain.

The average 1976 U.S. yield is forecast at 4,620 pounds per acre, 1 percent above 1975. Yields in Texas, Mississippi, Missouri and Arkansas are above a year ago but are being partly offset by lower yields in Louisiana and particularly in California. Rice crops were planted under good conditions and developed well during the growing season. Harvests in the South were delayed by wet weather, but once open weather began in July and persisted, harvests progressed rapidly. Growing conditions in California, however, were less favorable because of cool, wet weather and yields are estimated to be down about 4 percent from last year's record high 5,730 pounds per acre.

## RECORD STOCKS AND SUPPLIES

Rice stocks on August 1 totaled a record high 36.9 million hundredweight, more than 5 times last year's carryover. Stocks of all classes of rice were up, with long grain rice accounting for 44 percent of total stocks; medium grain 46 percent; and short grain 10 percent. Both milled and rough rice stocks jumped sharply, with the larger gain coming in rough rice which totaled 31.4 million hundredweight compared with only 4 million last year. Milled stocks, which increased 80 percent to 5.5 million hundredweight (rough equivalent), were the largest since 1959 due to the unusually large carryover of export sales.

CCC inventories accounted for about 19 million hundredweight of rough rice stocks on August 1, more than half of the carryover. Since the CCC minimum sales price is about \$9.90 per hundredweight (115 percent of the target price plus carrying charges), this quantity is essentially isolated from the market. Another 5.5 million hundredweight of carryover was earmarked as carryover export sales, so around 12 million hundredweight of rough rice was actually carried in private hands, still well above levels of recent years.



Despite a smaller 1976 crop, the larger carryover makes total rice supplies of 149 million hundredweight for 1976-77, another record. This marks the fourth year in which supplies have been larger than the year before and the third year in a row of record large supply.

Long grain rice again accounts for over half of the rice supply. Supplies of long and medium grain rice are larger than last year, but the supply of short grain rice is smaller.

#### DOMESTIC USE MAY INCREASE

Food use of rice in the United States, which includes shipments to territories, is expected to follow the uptrend of recent years. Retail prices of rice have been edging down while prices of competing foods have held steady or increased moderately.

Brewers' use in 1976-77 will likely continue to increase if beer sales of those firms using rice follow recent trends. More brewers may shift to using rice since prices of brewers' rice are well under prices of corn grits, the major competing ingredient.

Should these projections hold, domestic use would total around 6 percent above the 40 million hundredweight of last season.

#### LARGER EXPORTS LIKELY IN 1976-77

The volume of U.S. rice exports in 1976-77 hinges on the size of the world rice harvest, which is still uncertain. Early indications point to a world rice crop smaller than last year. World rice consumption, however, is expected to expand, so U.S. exports are likely to be larger than last season's 56.5 million hundredweight (1.8 million metric tons, milled), though short of the record 70 million hundredweight (2.3 million metric tons, milled) in 1974-75.

One factor bolstering export expectations was the carryover of about 5.5 million hundredweight (180,000 metric tons) of sales into this season. With these sales, higher expected Public Law 480 shipments, and anticipated increased commercial sales, exports might be around a tenth larger than last season. Announced program plans indicate that early shipments under Public Law 480 will be heavier than in recent years.

#### ANOTHER LARGE CARRYOVER IN PROSPECT

Even with total disappearance up about 10 million hundredweight to 104 million, there still would be some further buildup in carryover at the end of the 1976-77 marketing year. This suggests that prices could continue under pressure and CCC will continue to hold large inventories of rice.

#### PRICE WEAKNESS CONTINUES

Early season rice prices indicate that large U.S. and world supplies of food grain continue to weigh heavily on the marketplace. Farm prices for the first 3 months of the season averaged \$6.61, about 30 percent below year-earlier levels. Wholesale milled price quotes during September and October were off at least 20 percent from year-

earlier levels for long and medium grain rice at Southern milling centers, 34 percent for short grain, and 38 percent for medium grain in California.

This season's average price for rice could be well below the \$8.25 target price under the new rice program and the \$7.93 per hundredweight estimated for 1975-76. If so, deficiency payment will be made to allotment holders on allotment production only (about 83.5 million hundredweight). The deficiency payment rate would be equal to the difference between the target price and the national average price received by farmers for the first 5 months of the marketing year (August-December), unless the national 5-month average price falls below the loan rate (\$6.19). In that case, it would be the difference between the target price and the loan rate.

While prospects for sharp price advances appear slim, there is still uncertainty over the world crop and subsequent export demand. Strategies on storage and marketing also can influence seasonal price patterns as growers show increasing willingness to hold inventories.

#### RETAIL PRICES CONTINUE TO EDGE DOWNWARD

The downward drift in retail rice prices, which started in July of 1974, continued into this season. In September U.S. long grain prices averaged 42.4 cents per pound, down about 5 cents from last year and 11 cents from the peak in June 1974. There may be some continuation of this trend with farm prices running at low levels. Also, inflationary forces that tend to widen the farm-retail spread, especially energy-related costs, have lessened.

#### WORLD RICE SITUATION

##### SMALLER 1976-77 CROP EXPECTED; LARGER CARRYOVER OFFSETTING

The 1976-77 world rice crop is projected about 9 million metric tons less than last season's record 355 million metric tons (rough). This would be the first reduction since 1972. However, larger carryover stocks are likely to be offsetting, so the 1976-77 world rice supply may differ little from last year.

##### WORLD TRADE PROJECTED SAME AS 1975-76

The overall level of 1976 crops in importing countries will likely total somewhat less than the record 1975 level, but because of relatively good stocks positions, the crop decline is expected to cause little or no increase in total world import needs in 1977. As a result, total world trade for 1977 is projected at 7.4 million tons, the same as this year's level.

The United States, People's Republic of China, Burma, and Thailand account for around 60 percent of the world rice exports. For calendar 1977, exports will probably be up for the United States but down for the PRC, Pakistan, and Thailand.

On the import side, the Economic Community, Indonesia, Iran, and Sri Lanka (Ceylon) will likely import more in 1977 than in 1976, while Bangladesh, South Korea, and the Philippines will import less.



## WORLD RICE PRICES LEVELING OFF

Prices on the international market appear to have leveled off after a nearly continuous 3-year decline. During the 1975/76 U.S. marketing year, the Thai price for white milled rice (5 percent broken) decreased from \$348 a ton in August 1975 to \$248 in March 1976 and then held steady through August 1976. Prices rose somewhat in September and held steady in October, reflecting uncertainty over the Asian rice crop and the possible drawdown in world rice stocks at the end of 1976-77.

## OUTLOOK FOR 1977

Rice growers will be weighing carefully market conditions and cropping alternatives in making planting decisions for 1977 as they move into the last year of the 2-year Rice Production Act of 1975 that features:

A national allotment of 1.8 million acres, the same as in 1976;

A national average loan rate that will be somewhat higher than this season's \$6.19 per hundredweight. Only allotment production is eligible for loan; and

A target price moderately above this year's \$8.25 per hundredweight. Deficiency payments would be paid only on allotment production.

Growers will be looking carefully at cropping alternatives, mainly oilseed crops and cotton. Strong prices of these crops suggest that rice plantings may slip moderately from this year's 2.5 million acres.

TABLE 1.—RICE, ROUGH EQUIVALENT: SUPPLY, DISTRIBUTION AND PRICES UNITED STATES, AVERAGE 1965-69, ANNUAL 1973-76<sup>1</sup>

[In millions per hundredweight, except dollar amounts in dollars per hundredweight]

Item	Year beginning August				
	1965-69 average	1973	1974	1975 (preliminary)	1976 (projected)
Supply:					
Carryover Aug. 1.....	9.5	5.1	7.8	7.1	36.9
Production.....	89.3	92.8	112.4	127.6	112.4
Imports.....	.2	.2	(?)	(?)	-----
Total supply.....	99.0	98.1	120.3	134.7	149.3
Domestic disappearance:					
Food <sup>3</sup> .....	24.6	26.1	28.6	27.7	29.5
Seed.....	2.8	3.6	4.0	3.4	3.3
Used by brewers.....	5.6	8.1	8.4	9.1	10.0
Total.....	33.0	37.8	41.0	40.2	42.8 ±1.0
Exports.....	52.9	49.7	69.5	56.5	61.5 ±5.0
Total disappearance.....	85.9	87.5	110.5	96.7	104.3 ±5.0
Carryover July 31.....	11.3	7.8	7.1	36.9	45.0 ±7.0
Privately owned—"Free".....	(8.5)	(7.8)	(7.1)	(17.7)	-----
Total distribution.....	97.2	95.4	117.6	133.6	149.3
Difference unaccounted <sup>4</sup> .....	+1.8	+2.7	+2.7	+1.1	-----
National average loan rate.....	\$4.57	\$6.07	\$7.54	\$8.52	<sup>5</sup> \$6.19
Price received by farmers.....	4.96	13.80	11.20	7.93	-----
Difference between farm and loan.....	.39	7.73	3.66	-.59	-----

<sup>1</sup> Data apply to only major rice-producing States. Milled rice converted to rough basis at annual extraction rate. Totals may not add due to independent rounding.

<sup>2</sup> Less than 50,000 cwt.

<sup>3</sup> Includes shipments to U.S. territories and rice for military food use at home and abroad.

<sup>4</sup> Results from loss, waste, the variation in conversion factors and incomplete data.

<sup>5</sup> Target price under the Rice Production Act of 1975 is \$8.25.

## A WHEAT PRODUCER'S OUTLOOK

(By Winston Wilson, President, Texas Wheat Producers Association)

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Current prospects for the 1977 wheat crop appear to be good to excellent. Planted acreage is not significantly different from last year. There has been a shift of some irrigated acreage to other crops, but the overall effect will be slight. One factor which could have a substantial effect on harvested acreage is the possibility of cattle "graze-out" in Texas, Oklahoma and parts of Kansas. The extent of this practice will be determined by wheat and cattle price relationships and the amount of wheat growth in the next few months. At this point, it is too early to predict what the results will be.

Prior to the 1972-73 crop year, the U.S. had a long history of production controls and limited export levels. In 1972, with the large sale to the USSR, a change in policy direction took place. The decision was made to move toward full production in wheat and feed grains. The USDA allowed, and in fact specifically encouraged, "fence to fence planting" with a "free market" price orientation.

Grain farmers responded to this new policy with successive record or near-record production and, due to continued world shortfalls in grain production, prices were adequate and in some cases quite good. As a consequence, loan levels and target prices were largely ignored and not considered relevant to the "new era" of agriculture. At the same time, many voices were raised, both in government and in the private sector, calling for the establishment of a grain reserve.

On several occasions the government felt it necessary to suspend export sales for various reasons; the most recent being the suspension of sales to the Soviet Union, culminating in October 1975 with the signing of the bilateral agreement.

The wheat producer's view of the Russian agreement differs considerably from that of the USDA. The fact that the Soviet Union purchased in excess of eight million tons during the first year of the agreement, when only six million tons were required, would suggest that their purchases were based more on need than on a specific desire to comply with the provisions of the agreement. The net result? The roughly five million tons of sales lost during the embargo were just that, a loss to American agriculture and the U.S. economy.

The 1976 crop year varies radically from the experience of the preceding years. The U.S. has another near record crop, but this time there has been no significant shortfall in other major production areas of the world. Carryover is predicted to approach one billion bushels and prices are at a three-year low and, at this time, are not covering variable out-of-pocket production costs.

In light of this carryover and price situation, it would appear that the logical consequences would be a sharp reduction in planted acreage, but this has not been the case. There are two primary reasons for the present high levels of planted acreage. First there is the lack of a realistic alternative crop in a large portion of the wheat area. The second factor is the wheat growers' intermediate and long-term commitments of capital investment (most of it borrowed) during the rapid expansion of production during the past three years. This investment is not easily withdrawn in the short run, and as a consequence, farmers are hoping to recapture at least some portion of their fixed costs in order to make some sort of payment on their intermediate and long-term loans.

An additional complication is the fact that producers are having to hold the bulk of the carryover stocks. In effect, a reserve has been created and wheat farmers are paying the cost of financing and storing this reserve. These costs, combined with the financing of the 1977 crop, are placing a real strain on lending institutions in the wheat area. The recent increase in CCC loan rates has eased this situation to some extent, but since these loans are only of 11 months duration, a real crisis could occur in 8 to 12 months, when most of these loans will mature.

In my judgment, if there are no significant changes in the world wheat situation, or applicable government programs within the next 12 months, it is quite likely and indeed probable that there will be a disastrous financial crisis in the wheat industry. Widespread bankruptcy among producers will not be uncommon. At current production costs, farmers can survive one bad year, but the effects of two such years in succession will be impossible to overcome.

The current farm bill is due to expire in 1977. During the development of new legislation, a reassessment of the situation must be made. The determination must be made as to whether it is indeed in the best interest of the United States, and the world community at large, for U.S. agriculture to continue down the road of full production. If this determination is positive, then policies must be adopted which will permit the production segment of the industry to survive during periods of large supplies and low prices. Some suggested changes are: CCC loans of longer duration (at least three years), a loan rate which represents a significant portion of production costs, some public participation in the costs of carrying stocks, and the use of an acreage "set aside" provision when carryover stocks become too large, as they are at present.

## OUTLOOK FOR FRUIT AND TREE NUTS

(By Jules V. Powell, Economic Research Service, USDA)

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### GENERAL PRICE PROSPECTS

The 1976-77 fruit and tree nut season cannot be characterized by any blanket statement concerning supplies and prices. However, supplies of noncitrus fruits will be lower and prices higher than a year earlier, and supplies of citrus fruits are expected to be record large this year and prices will be lower. The almond crop will be the largest on record while the pecan crop will be the smallest since 1962.

The latest forecast of the 1976-77 citrus crop indicated a record high 16.8 million tons (excluding grapefruit in California other than desert areas), almost 15 percent above last year's record crop. Larger crops are currently expected for all citrus except Florida tangelos which are forecast to be the same as a year ago. Noncitrus fruit tonnage is estimated to be moderately below last year's utilized levels. The smaller production is due primarily to the smaller apple, tart cherry, and grape crops.

Improving economic conditions in the United States and abroad in 1976-77 should boost real disposable personal income, which will have a positive effect on consumer purchases of fruits and tree nuts. Favorable retail prices for most fresh and processed fruits—and particularly for citrus products—are expected to result in continued increases in per capita consumption of these products.

Although prices received by growers for fresh and processed fruit so far this year have averaged moderately below year-earlier levels, the October index of prices received by growers stood at 153 (1967=100), up substantially from September's level and well above a year ago. Prices were sharply above 1975 levels for apples, pears, grapefruit and oranges, offsetting lower prices for lemons and strawberries. However, Mr. Powell stated that prices are expected to decline seasonally, particularly for citrus fruit. Thus, the price index in the fourth quarter is still expected to average slightly lower.

The 1976 contract prices negotiated for most noncitrus fruit for processing are below last year's levels, which will pull down the 1977 grower price index. Grower prices for apples for fresh and processing uses are expected to be substantially higher than a year ago, but the larger supplies of citrus fruit are likely to keep grower prices slightly below year-earlier levels through the first half of 1977.

TABLE 1.—INDEX OF QUARTERLY PRICES RECEIVED BY GROWERS FOR FRESH AND PROCESSED FRUIT  
[1967=100]

Year	1st	2d	3d	4th
1972.....	109	118	121	120
1973.....	123	136	148	142
1974.....	133	140	148	142
1975.....	127	149	150	134
1976.....	131	135	129	<sup>1</sup> 128
1977 <sup>1</sup> .....	123	139	-----	-----

<sup>1</sup> Estimate.

Retail prices for most fresh fruit have increased seasonally during the summer. However, the September Bureau of Labor Statistics (BLS) retail fresh fruit price index at 163.4 (1967=100) declined moderately from August. Although retail fresh fruit prices are expected to decline further seasonally this fall, strengthening demand and higher marketing costs likely will combine with the smaller apple and grape crops to keep the retail fresh fruit price index slightly higher this fall than a year earlier. However, retail prices for fresh fruit during calendar 1976 are still expected to average slightly below 1975. Retail prices of most fresh fruit during the first half of 1977 will rise seasonally, and the index is likely to average slightly above the comparable 1976 period due mainly to higher apple prices.

TABLE 2.—QUARTERLY RETAIL PRICE INDEXES FOR FRESH FRUITS  
[1967=100]

Year	1st	2d	3d	4th
1972.....	114	124	134	123
1973.....	126	142	148	139
1974.....	138	153	164	149
1975.....	150	171	177	147
1976.....	146	161	170	<sup>1</sup> 150
1977 <sup>1</sup> .....	152	166	-----	-----

<sup>1</sup> Estimate.

Wholesale prices of canned fruit have strengthened in recent months, and by October the BLS wholesale price index reached 173.7 (1967=100), 5 percent above a year ago. Reflecting tight supplies of frozen strawberries and tart cherries, a substantially higher wholesale price was recorded for frozen fruits. With higher processing cost and strengthening demand, associated with moderate domestic and foreign economic activity, wholesale prices of processed fruit are likely to remain high through this winter.

#### CITRUS FRUIT

The first forecast of the 1976-77 citrus crop indicated a record 16.8 million tons (excluding grapefruit in California other than desert areas), almost 15 percent above 1975-76.

November forecast points to a record high U.S. orange crop of 11.8 million tons (271.4 million boxes) for 1976-77, 12 percent above the previous record set last season. Record output is indicated for all varieties of oranges.



Prospects are up in Arizona and Florida, the two States which account for four-fifths of the prospective U.S. orange crop. Texas orange production is expected to remain unchanged, while orange output in California is forecast slightly below last season. Although acreage in Florida is virtually the same as last year, all orange prospects are placed at a record 209 million boxes, 15 percent above last season. Production of early and midseason varieties is expected to be 22 percent larger, with Valencia production up 7 percent. The set of fruit in the trees is more than one-fourth greater, but sizes are expected to be smaller.

In California, Valencia production is expected to be up 4 percent while navel and miscellaneous production will be down 5 percent. The Arizona orange forecast is almost three-fifths above last season's small crop but is 15 percent less than the 1974-75 crop.

With the season starting late, shipments of Florida oranges through early November were sharply below year-earlier levels. As a result, opening f.o.b. prices for Florida oranges were much higher than a year ago. (Price behavior during the 1976-77 season will depend on a number of factors. A record large orange crop definitely will put downward pressure on grower prices. However, if movement of frozen concentrated orange juice continues at the current high pace, prices for oranges could be strengthened somewhat by strong processor demand. In addition, the substantially smaller apple crop could offset some of the price-depressing impact of large orange supplies. Current prospects for oranges through the winter point to grower prices declining seasonally to levels below last year's high levels. These price decreases also can be expected to show up at the retail level.)

A record grapefruit crop is being forecast. Supplies for 1976-77 are expected to total 75.7 million boxes (excluding California's "other areas"), up 13 percent from last season and 30 percent above the 1974-75 season. The record crop is due to a substantial increase in Florida output.

Florida's grapefruit crop, forecast at a record 58 million boxes, exceeds the record set last season by 18 percent. The increase is shared by both white and pink seedless varieties. The Texas crop, at 11.5 million boxes, is up moderately from last season.

With a later harvest start, grapefruit shipments from Florida through early November were substantially less than a year ago. Consequently, early season f.o.b. prices were substantially above year-earlier levels. Price behavior during the 1976-77 season will depend on a number of factors. A record large crop definitely will put downward pressure on grower prices. However, domestic movement of fresh grapefruit during 1976-77 is expected to expand and processor demand is likely to remain strong. Movement of most processed grapefruit products was generally encouraging last season, as carryover stocks going into the 1976-77 season are below last season's levels. Exports are expected to register another moderate gain over 1975-76 as demand for grapefruit from abroad will continue favorable. Current prospects for grapefruit through the winter point to grower prices declining seasonally to levels moderately below a year ago.

The Arizona-California lemon crop is forecast at 25.8 million boxes, 45 percent above last season's small crop, but still 12 percent below the

record 1974-75 crop. Arizona's lemon crop, at 5.8 million boxes, will be twice as much as last season, while California's crop is expected to be about one-third larger.

Total movement so far this season has been sharply higher than a year ago, reflecting the larger crop. Although domestic fresh shipments were up only moderately from last season, fresh lemon exports and deliveries to processors were much larger than a year ago. In response to the larger crop, f.o.b. prices for fresh lemons so far have averaged almost one-fourth below last year's high levels. Prices during the 1976-77 season are expected to remain considerably lower than 1975-76, but are not likely to decline to 1974-75 levels.

#### NONCITRUS FRUIT

The 1976 noncitrus fruit crop is forecast at 10.5 million tons, nearly 10 percent below last year's utilized level and 6 percent below 1974. The decrease is due primarily to the smaller output of apples, grapes, and tart cherries. Because of the smaller stocks of apples and pears, cold storage holdings of fresh noncitrus at the beginning of October were down 60 percent from the unusually high levels of a year ago. Stocks will remain below the levels of 1975-76 because of smaller apple crops in the East and Midwest and active processor demand for available supplies. Smaller total supplies of noncitrus fruit will be available for fresh markets during the remainder of this season and prices received by growers are expected to average substantially above the 1975-76 season.

The October 1 forecast of the 1976 U.S. commercial apple crop is 6.1 billion pounds, 13 percent below the record 1975 utilized production. The crop in the Eastern States is forecast at 2.2 billion pounds, down 20 percent from a year earlier. In the Central States production is forecast at 0.90 billion pounds, 28 percent below the 1975 crop. The Western region expects a 3 billion pound crop, only 2 percent below the record high 1975 crop.

Early shipments of fresh apples ran behind last year, but they have picked up, reflecting the stronger processor demand—particularly in the East and Midwest—and the increased seasonal demand in the fresh market. Strong processor demand is attributed to low inventories of processed apple products. The favorable inventory picture and the short crops in major processing areas have led to raw product prices substantially higher than in 1975.

Opening f.o.b. prices for fresh apples at major shipping points were substantially higher than last year. In late October, prices decline slightly from high opening levels but are expected to continue substantially above 1975 levels.

Pear production in the United States is forecast at 756,800 tons, 2 percent above last year's tonnage. Bartlett pear production for the three Pacific Coast States—at 535,000 tons—is up 6 percent from a year ago, the largest ever. California's crop was substantially larger, more than offsetting lower production in Oregon and Washington. Most Bartletts are used for canning. In fact, nearly three-fourths of last season's crop was canned.

The production of fall and winter pears in Washington and Oregon is expected to total 184,000 tons, 4 percent more than in 1975. The larger

production in Oregon will more than offset the 6-percent decline in Washington. These pears are mostly destined for storage and are the principal supplies for the fresh market during winter and spring. Most of the remaining U.S. pear production is located in Michigan and New York where sharply reduced crops have been realized.

U.S. grape production is forecast at 3.6 million tons, nearly a fourth below the record crop which had been predicted earlier. The crop was reduced by the disastrous rains in California in September. The October 1 forecast was down 17 percent from 1975 utilized tonnages and indicates the smallest crop since 1972. California, which normally produces 90 percent of the U.S. crop, is expected to produce only 3.15 million tons in 1976, compared with 4.2 million tons forecast on September 1 and 3.9 million tons utilized in 1975. Total grape production from States other than California is now estimated at 416,250 tons, slightly above the 1975 utilized crop. The biggest drop in production in these other States occurred in Michigan, down 78 percent, while New York, Pennsylvania, and Washington are expecting small increases.

The October 1 production forecast for table grapes dropped to 350,000 tons from last month's 450,000 and is now 12 percent below 1975. In addition to existing rain damage, potential storage time for table grapes will be reduced. Shipments of fresh grapes have been running moderately above a year ago. Shipping point prices for most California grapes rose after the rains of September and early October and now are well above year-earlier levels. Since supplies of fresh grapes will be smaller this season, f.o.b. prices are expected to be substantially higher than last season.

The field prices for California dried raisins were established during the second week of October. The Raisin Bargaining Association agreed to sell 100 percent of its members' natural Thompson Seedless raisins and Zante currants at \$1,050 per sweat box ton, and packers accepted the offer. The October 1 estimated raisin grape output, at 1.5 million tons, is off 35 percent from last month's forecast and falls 32 percent short of last year's crop. Grapes already laid have been ruined by mold, rot, and insects, and those still on the vine are encountering bunch rot as well as reduced sugar content. Trade estimates of the 1976 raisin output are now generally below 100,000 tons compared with early season estimates ranging from 240,000-250,000 dry tons.

Winery prices to growers this season have been above last year's levels. Prices varied greatly by producing areas, supplies, and varieties of grapes. In early October the crushing price for Thompson Seedless in most areas was \$85 per ton, with no sugar stipulated, compared with \$55 last year.

Because of a smaller noncitrus crop, the 1976-77 pack of most non-citrus fruit is likely to be less than that of a year ago. Total supplies of canned noncitrus items are expected to be slightly above a year ago because of large carryover stocks at the beginning of the season. Supplies of most dried fruits are expected to be down somewhat, particularly raisins, because of the unseasonable late September and early October rains in California and subsequent poor drying weather. Frozen fruit supplies will probably be moderately below a year ago. Wholesale prices for canned fruits will be up moderately as a result

of higher processing costs. Prices for both dried and frozen commodities are also expected to be above year-earlier levels.

On the basis of data available for nine canned noncitrus items, total pack for this season decreased almost 13 percent from a year ago. Lower pack is indicated for all items except fruit cocktail and sweet cherries. However, with the canned noncitrus fruit carrying into the 1976-77 season larger than a year ago, total supplies for 1976-77 marketing will still be adequate.

The U.S. pack of frozen deciduous fruits and berries this year is expected to be considerably below 1975 levels, primarily as a result of the smaller pack of tart cherries. The total pack of frozen cherries was 68.3 million pounds in 1976, down 46 percent from a year earlier.

Through mid-September, freezers' receipts of blackberries from Oregon and Washington were slightly below those of 1975. Deliveries of blueberries were slightly below last year's levels in Washington but up moderately in Oregon. Frozen boysenberries in Oregon, however, were 41 percent less than a year earlier.

Total deliveries of strawberries to freezers through September 30, were 139.3 million pounds, compared with 106.7 million at the same time last season. The unseasonable rains in late September and early October brought an end to the strawberry season in California.

U.S. dried fruit production for the 1976-77 season is expected to be considerably smaller than last season. The raisin crop will be substantially lower than was predicted earlier, official estimates of the final outturn are not available. The production of dried prunes and other major dried fruit items in California was also adversely affected by the wet weather in California, but to a lesser extent than raisins.

This year's supply of dried prunes is expected to be 177,800 tons, 8 percent less than in 1975. Fruit quality is indicated to be somewhat better than a year earlier but sizes are smaller.

With the expected pack drastically below year-earlier levels, the total supply of raisins will be down substantially from last season. Domestic demand for raisins is expected to remain good. Foreign demand for raisins during 1976-77 is also expected to be very good. Smaller raisin crops are reported for Spain, Turkey, Greece, and Iran. Both South Africa and Australia are reporting sold out of the stocks and will not harvest for another 6 months.

#### TREE NUTS

Current prospects for the four major edible tree nuts (almonds, filberts, pecans, and walnuts) point to an estimated output of 491,550 tons (in shell basis), slightly below 1975, but still substantially more than 1974. A record almond crop this season is more than offset by sharp declines in pecan and filbert production and a moderately smaller walnut crop.

A record almond crop is expected. California's almond production is forecast at 235,000 tons (in shell basis), nearly one-half above last year's output and one-fourth more than the 1974 record crop. Movements to both domestic and foreign markets so far this season are encouraging. Open prices for almonds were moderately lower than a year earlier, but a further substantial decline is not expected if movement continues strong.



As of October 1, the 1976 pecan crop is forecast at 114.4 million pounds, about half of last year's production and the smallest since 1962. All States except North Carolina expect smaller crops. A crop only two-thirds of that of 1975 is expected to be harvested in Georgia, the leading producer, while Texas, the second largest producer, expected a crop down three-fifths from last year. The improved varieties account for 62 percent of the pecan crop, up from 45 percent last year.

Even with substantially larger carryover stocks at the beginning of the season, total supplies of pecans will be considerably smaller this season because of the smallest crop since 1962. Consequently, grower prices are expected to average considerably above year-earlier levels.

Oregon and Washington filbert production in 1976 is forecast at 8,150 tons as of October 1, one-third less than last year, but one-fifth above the short 1974 crop. Foreign production of filberts is also expected to be moderately less than last year. However, our imports of filberts are likely to remain large and total supplies during 1976-77 will be adequate. Thus, the smaller filbert crop might strengthen grower prices slightly.

The 1976 production of walnuts in California and Oregon is forecast at 191,200 tons, 4 percent below the 1975 record crop. However, this is still 22 percent above 1974. Thus, combined with the smaller carryover at the beginning of the 1976-77 marketing year, total supplies of walnuts for 1976-77 will be moderately smaller than last year.

Opening prices of in-shell walnuts in California are unchanged from last year, but the visible shelled retail pack prices are up from approximately 7.5 percent for the smaller pack sizes to 14 percent for the larger pack sizes over last year. In view of smaller domestic and foreign supplies, prices received by walnut growers during 1976-77 are expected to average above year-earlier levels.

#### OUTLOOK FOR FRUIT AND NUT EXPORTS

U.S. export prospects for 1976-77 vary among the individual fruit items, but generally are not promising.

U.S. exports of fresh oranges and tangerines from November 1975 through August 1976 totaled 892 million pounds, 7 percent below the same period a year ago. With orange production up slightly in the Mediterranean region last season, U.S. shipments declined sharply. Canada, the major customer for our oranges, increased its imports slightly. Our exports to other parts of the world are expected to remain at comparatively low levels during the 1976-77 season. However, prospects for exports of frozen concentrated orange juice continue to be favorable.

Prospects for exports of fresh apples would appear to be bright because of lower apple production in Western Europe, down 15 percent, and Canada, down 11 percent. However, the smaller crops in the East and Midwest will tend to keep our available supplies for domestic markets.

Exports of fresh grapes during the first 3 months of the 1976-77 season (June-August) amounted to 16,814 tons, an increase of 42 percent over a year earlier. However, the disastrous rains of September



and October completely reversed the grape market and further exports this season will average lower than in previous seasons.

Exports of canned noncitrus fruit also show a mixed pattern. Reflecting lower domestic supplies, exports of cherries and fruit cocktail were down from year earlier levels. Exports of canned apricots, peaches, and pears were at encouraging levels early in the season but are expected to taper off. During the 1960's, U.S. canned fruit comprised 90 percent of the market in West Germany, our largest customer. Last year the U.S. share dropped to 3 percent while imports from Greece and Italy increased to two-thirds of the market in that country.

Domestic supplies of raisins and other dried fruits will be below our usual stocks this year and additional supplies may be imported from the Mediterranean countries where crops were generally good.

U.S. exports of almonds and walnuts are expected to continue to increase during 1976-77. Both nuts are well established in foreign markets, offering high quality and favorable prices to foreign purchasers.

#### PER CAPITA FRUIT CONSUMPTION

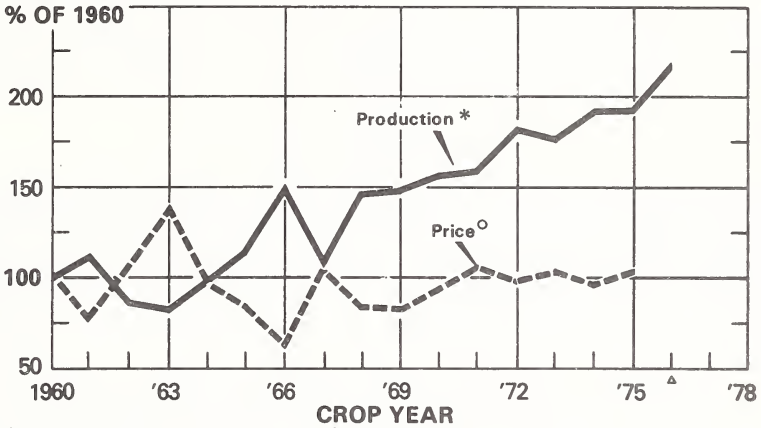
Civilian per capita fruit consumption showed a good gain during 1975, increasing nearly 10 pounds to 213 pounds (fresh weight equivalent). Consumption of fresh fruit showed a significant increase of 5.2 pounds to 83.6 pounds per person. All fruit products shared in the increase except canned fruits which showed a slight decrease. Generally, nearly all of the increase in per capita consumption was registered by fresh and frozen items.

Preliminary estimates indicate smaller increases in prospect for per capita fruit consumption during 1976, possibly up to 215 pounds per person. Fresh use is expected to be down slightly, decreasing to 82.9 pounds per person, while processed use will show a gain of nearly 3 pounds to 132 pounds per person.

The most significant change for processed fruit has been the continued growing importance of chilled and frozen fruits and juices, particularly chilled and frozen orange juice.

If realized, 1976 fresh fruit use will still be the second highest since 1950. Fresh noncitrus consumption at 53 pounds is only slightly below the record high level of 1975. Increases registered in the consumption of bananas will be offset by decreases in the consumption of apples. Most of the other noncitrus items are expected to remain relatively unchanged. Per capita use of fresh citrus, at 29 pounds, will be virtually the same as in 1975, reflecting another large citrus crop and continued good consumer demand.

## CITRUS FRUIT PRODUCTION AND PRICES

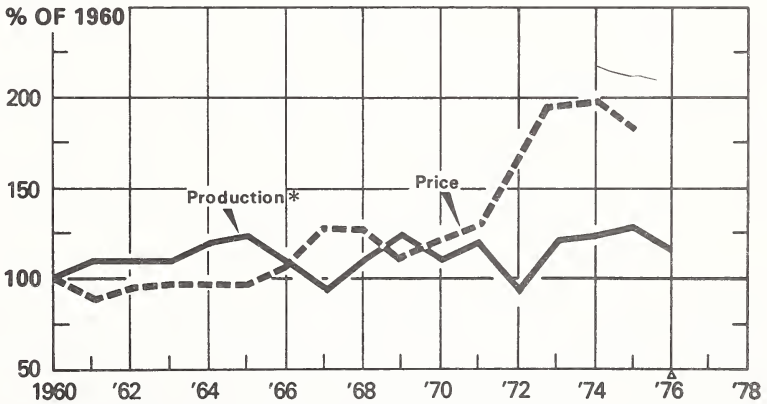


\* INCLUDES PRODUCTION OF ALL CITRUS FRUITS. ° SEASON AVERAGE PRICE TO GROWERS.  
PRICE WEIGHTED BY PRODUCTION. Δ PRELIMINARY.

USDA

NEG. ERS 2042 - 76 (10)

## NONCITRUS FRUIT PRODUCTION AND PRICES



\* 15 IMPORTANT FRUITS. ° SEASON AVERAGE PRICE TO GROWERS.  
PRICE WEIGHTED BY PRODUCTION. Δ PRELIMINARY.

USDA

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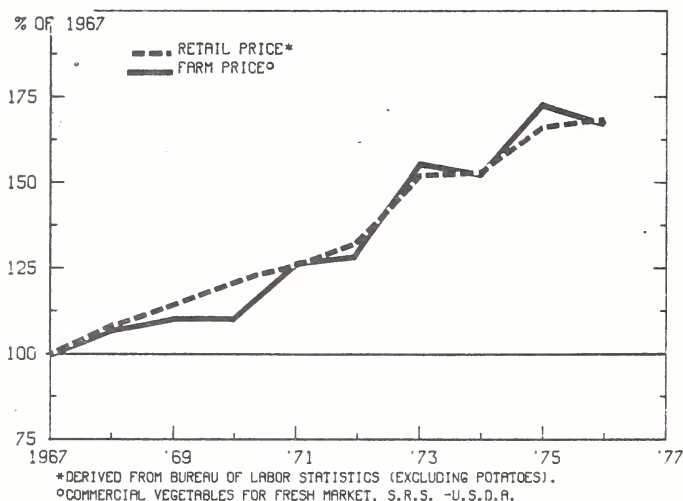
## OUTLOOK FOR VEGETABLES AND POTATOES

(By Charles W. Porter, Agricultural Economist, Economic Research Service,  
USDA)

### FRESH VEGETABLES

Fresh market vegetable prices to growers this year have averaged moderately less than a year earlier, as both domestic output and Mexican imports have been relatively large since January 1. For the balance of the year, grower prices are expected to be firm and rise moderately above the closing months of last year. However, grower prices may still average less than in 1975.

### FRESH VEGETABLE PRICE INDEXES



Retail prices for fresh vegetables also showed little change quarter by quarter from a year earlier, but are expected to show some rise in the fourth quarter. However, this year retail prices caught up as grower prices declined from 1975 levels. Domestic demand for fresh vegetables in late 1976 and into 1977 is expected to expand with growing consumer buying power.

At this moment, it is difficult to assess the impact of the Mexican peso devaluation. However, the devaluation itself tends to reduce the cost of Mexican vegetables, which may give their industry some initial competitive advantage.

*Fall acreage and supply prospects*

Fall vegetable acreage in the United States is about 1 percent more than the last quarter of 1975. Should yields turn out be close to historical averages, the potential production of 14 vegetables would be about 3 percent larger than in 1975.

The largest acreage gains were for broccoli, cabbage, and carrots. Salad vegetables, tomatoes, peppers, and cucumbers showed either no change or small acreage decreases. In California and Arizona, both cantaloups and honeydews showed sizable acreage increases.

## PROCESSED VEGETABLES

This year processing vegetable growers cut acreage devoted to these crops because carryovers were large. In addition, unfavorable weather in many sections has been responsible for further reductions. Raw tonnage of seven major vegetable crops is expected to drop a fifth below a year earlier to about 9.7 million tons. This would be the smallest harvest since 1972. Acreage cuts applied to crops destined for both canning and freezing. Weather-induced cuts also affected California, the Upper Midwest, New York, and Oregon.

Although the data are far from complete at this time, with large carryover stocks of processed vegetables, prospective supplies of 10 important canned vegetables will be only moderately smaller than in 1975-76. Accordingly supplies probably will be large enough to cover expected disappearance during the 1976-77 marketing season at modestly increasing prices. The important concentrated tomato products are not included in these estimates, but canned tomatoes and tomato juice are 2 of the 10 items counted.

Tomato production and packs in California will be cut sharply this year. Raw production in that State is currently estimated at more than 5 million tons, but 30 percent less than the record tonnage of a year earlier.

Stocks of frozen vegetables on October 1 were 9 percent below the large quantity on hand for the same date a year earlier.

It appears that 1976 packs of frozen items too will be materially smaller, and with fairly active trade movement expected, the carryover at the end of 1976-77 would probably be lower than either of the two previous marketing seasons. Nevertheless, total supplies will be large enough to limit price advances except for possibly two or three items that may turn out on the short side.

Wholesale prices for canned vegetables had been steady at lower levels much of this year. As prospects for less burdensome supplies developed, prices bottomed out late in the summer, and some moderate price strength has been developing as the new selling season gets underway. An ERS wholesale canned vegetable index showed October prices at 166 (1967=100), 10 points more than early this summer. Wholesale prices for frozen vegetables also have strengthened as the supply-demand situation moves into a tighter balance.

Processing vegetable acreages in 1977 may be expected to be moderately larger due to the severely reduced tonnages which resulted in 1976. Contract prices to growers probably will be equal or slightly higher than a year earlier.

## POTATOES

Currently, a record large fall crop is forecast as of October 1—300 million hundredweight, 9 percent more than last year. Grower prices have been weak during October and early November. This year, processors did not line up large supplies as early as in 1974, and this accounts for the different price pattern. The October SRS price for the United States was only \$2.98 per hundredweight versus \$3.80 for the fourth quarter of 1975.

*Analyzing European demand*

Despite the prospect of a large crop, the need for potatoes in Europe may check severely depressed prices for U.S. growers. With relaxed import restrictions now prevailing in several European countries, and with active inquiries daily, there seems a strong possibility that a substantial share of the excess fall output will move into export markets in the next 8 or 9 months as fresh potatoes or potato products. Usually only 1 or 2 percent of the U.S. potato output is exported and much of that goes to Canada as table or chip stock from Florida, North Carolina, Virginia, and Maine. There is also nominal trade elsewhere along the Canadian border. Export trade never had any real impact on domestic prices until the 1975-76 season when European drought stimulated our first substantial sales.

In the 1976-77 season, with the large crop to be marketed, exports up to 30 million hundredweight (fresh and processed combined on a fresh weight basis) would likely strengthen prices, but to a point still below last year's level. Historical observations of supply-price relationships for potatoes show that for each 1 percent change in supply there is a price response of at least 3 percent in the opposite direction. Within the fourth quarter of 1975, the U.S. average price was \$3.80 per hundredweight, and with exports no larger than last year's record, the 9-percent larger crop this year would suggest a price of about \$2.80. However, some price impact of export activity is being felt at the present time, as the average price for October was reported at \$2.98 per hundredweight.

Trade observers have estimated the shortfall of Western European production to be in the neighborhood of 60 million hundredweight. But rising prices would modify the demand from Western Europe. At this juncture it is not possible to determine whether the full amount of the shortfall will be made up with foreign purchases, nor is it possible to assess of how much tonnage will be purchased from the United States, Canada, Egypt, and possibly one or two other suppliers. The United States will probably be the leading single supplier. As of mid-October, the French Government has permitted one of its agencies to arrange to buy the equivalent of 4.4 million hundredweight in this country. Scattered shipments have been made to other European and South American countries through the ports of Searsport, Maine; Kenosha, Wisconsin; Duluth, Minnesota; Albany, New York; and possibly a few others.

Not all of the potatoes shipped to Western Europe will be table stock. If last season is taken as a guide, perhaps half the volume exported (fresh weight basis) would be in processed forms—flakes, granules, or frozen fries. In fact, the United Kingdom has not indi-



cated whether it might change its restrictions against North American table stock. Last season, they purchased large quantities of dehydrated potatoes to make up their supply deficit. With even smaller output this year, the United Kingdom is expected to make substantially heavier purchases from us.

*The fall crop is heaviest in the West*

The U.S. fall crop production of 300 million hundredweight is 9 percent larger than in 1975, and 4 percent larger than the previous record set in 1974. The increase is the result of larger acreage; yields were slightly lower than last year, 262 hundredweight versus 264 in 1975.

In the eight Eastern fall States, production is 6 percent above a year earlier, at 51.3 million hundredweight, an increase less than the U.S. average. Yields were very good in this region, although heavy rain and flooding in Aroostook County, Maine, did result in some acreage loss.

In the eight Central States, the production gain of 4 percent is also less than the national average. Production is forecast at 56.2 million hundredweight. In this region, dry weather cut yields below the previous two seasons. The dry weather, however, did encourage early harvest activity throughout the region.

In the West, production of 192 million hundredweight is 11 percent above 1975 and 18 percent more than 1974. These data suggest the strong westward shift in production continues. In Idaho, harvest was off to an early start in September, with quality and condition reported better than a year ago. Oregon had good September growing weather but high temperatures in Washington delayed harvest activity in that State.

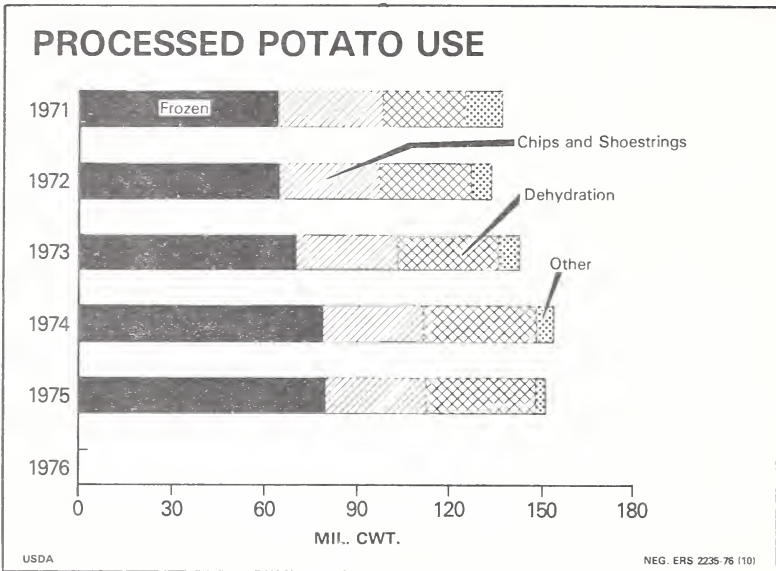
*Price and supply implications*

With most of the gain in output centered in the West, this area may be a major source of shipments to Europe. If so, processed products probably will account for the lion's share of export activity from this region. This does not rule out the prospect of volume fresh movement from the West, but the East and Midwest have a freight cost advantage. Substantial early shipping has already taken place from eastern and midwestern ports as indicated earlier.

Since less of the gain in the crop is in areas where round potatoes are important, and since export of round potatoes is quite active, it follows that grower prices in the East and Midwest would be expected to show strength first as the storage season progressed.

Potato prices this fall and winter could have turned out even lower for growers, had it not been for the drought-induced export activity.

At the present time, domestic needs of fall crop potatoes are expected to total close to 260 million hundredweight for food and seed use combined. (When the three other seasons are added, total food and seed use may reach 305-310 million hundredweight.) After European outlets have tried and used American processed potato products, they may be in the market for more in subsequent years. But the demand for American potato products after 1976-77 may be as much a political decision as it is economic.



#### *Winter acreage off 8 percent*

Growers in Florida and California intend to plant moderately less acreage for harvest in the winter quarter of 1977. This reflects their concern about generous supplies of storage stock which would be competing in the marketplace. Winter quarter tonnage which is usually small contributes about 1 percent to the annual output of potatoes in the United States.

Potato acreage in 1977 is expected to be at least slightly less for each seasonal group. This assumes heavy supplies of storage stock available the first half of the year. At planting time next April, growers of the 1977 fall crop generally may be expected to base their acreage on prices prevailing at that time. For example, low prices next spring would probably suggest lighter plantings than in 1976.

#### SWEETPOTATOES

The final production forecast for the 1976 sweetpotato crop of 13.8 million hundredweight is 2 percent more than a year earlier. A moderate increase in sweetpotato canning is expected this season. In 1975, canners sharply cut their pack to 7.6 million cases to alleviate a burdensome supply situation. With July 1 carryover stocks of 2.7 million cases considered ample, trade allowances are being offered for a new pack. Nonetheless, the 1976 pack should at least moderately exceed the small 1975 figure in order to supply annual disappearance of 9 to 9.5 million cases 24/303's, allowing for a nominal carryover. Canning activity is expected to extend through November in North Carolina and Louisiana. Carolina canners are paying growers \$1.25 per 50 pounds delivered, the same as a year earlier.

With slightly larger supplies on hand, f.o.b. prices for fresh market stock are substantially lower than a year earlier. Prices are expected

to increase slowly as the storage season progresses, though holding lower than corresponding months a year earlier.

#### MUSHROOMS

##### *A big year 1975-76*

U.S. mushroom production valued at nearly \$200 million in 1975-76 moved ahead again to 310 million pounds, 4 percent more than a year earlier. Pennsylvania, the leading State produced about the same quantity as a year earlier (179 million pounds) so the share contributed by that State slipped to 58 percent of the U.S. total. The average yield of 2.7 pounds per square foot was equal to the previous season.

Fresh market sales volume of mushrooms gained 13 percent, causing short supplies and high raw product prices for domestic processors. This prompted the canning industry to seek Government aid in checking the flow of less costly canned imports. Domestic processor use declined 3 percent to 168 million pounds. Processing prices paid to growers rose sharply to 53 cents per pound compared with 40.9 cents a year earlier. Prices paid to growers for fresh mushrooms rose to 71.9 cents per pound. These gains were recorded in the face of increased supplies, attesting to strong consumer demand for this specialty food product.

Imports of canned mushrooms rose moderately during 1975-76, reaching a total of 57 million pounds, an increase of 14 percent over the previous year. Domestic canners showed their concern by petitioning the President to use his office to seek a reduction of supplies reaching this country in the 1976-77 season. The recent visit to South Korea and Taiwan by his representatives secured an informal agreement that U.S. markets would be monitored so they would not be disrupted by excessive quantities of canned imports. Taiwan and South Korea account for about 95 percent of our canned imports.

Looking ahead to the 1976-77 marketing season, our attaches in Taiwan and South Korea expect heavier production in both countries. South Korea expects 27 percent more tonnage to be produced from 14 percent more bed space. Taiwan too, expects to export more to world-wide markets. Last year they produced 51,000 metric tons (112,400,000 pounds). That is roughly one-third the size of annual output in this country. In 1976-77 the Taiwanese expect to raise their production by about 15 percent.

With increased import activity expected and with intentions to increase bedding space by 10 percent in this country, somewhat lower prices may be expected. This may not be as serious as it appears, because rapidly rising and record high prices for all mushrooms have possibly limited domestic use to some extent. This will serve to stimulate production in late 1976. With continued improvement in economic activity in this country, the demand for fresh and canned mushrooms should be strong again this season.

#### DRY EDIBLE BEANS

##### *A few more whites this year*

U.S. production estimates for this year declined during September. The crop is now calculated to be 17.5 million hundredweight—only 8 percent more than last year.

In general, where white beans are important, a moderately larger output from a year earlier is expected. The opposite is true in States like Colorado and North Dakota where pintos are heavily planted. In Michigan, the largest producer, the navy bean crop again suffered weather damage this season. The crop there of 4.9 million bags is 9 percent larger than last year, but still well below the levels of most recent years. Nebraska, a State well-known for great northern, had an 8-percent increase this year. There is also a larger lima bean crop in California, but untimely rains caused some loss and staining of beans. In many States, yields turned out less than earlier expectations.

#### *Recent price developments*

The Statistical Reporting Service's (SRS) report on average prices received by growers, a composite of all major classes, shows a generally steady price decline through the 1975-76 season. In October 1976 prices averaged \$14.30 per hundredweight down \$10 from a year earlier. Currently, prices received by growers are at the lowest level since 1972, a time when production costs were much lower.

Export activity in 1975-76 was the poorest in recent years, and was partly responsible for the declining prices of this season just past. Approximately 2.7 million hundredweight moved in foreign trade against the record 5.1 million hundredweight in the previous season. The bulk of the trading activity was with Europe, especially the United Kingdom, Netherlands, and West Germany. This past season, Mexico used only limited quantities of our pintos, and what activity there was in Latin America came from an export credit sales program deal to the Dominican Republic. The Japanese, who are usually substantial customers, bought much less from us this year, too.

With the second year of light supplies and the chance that export activity should improve from the very low levels of 1975-76, supplies are likely to tighten as the market season progresses. A steady to moderately stronger market may be expected for 1976-77.

## WORLD SUGAR SITUATION

(By Gordon E. Patty, Agricultural Economist, Foreign Agricultural Service, USDA)

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The 1976/77 sugar year will be characterized by ample supplies. Production will be an all-time record high of 87 million metric tons, raw value. While consumption will increase by about 2 million tons, there will still be an excess of production of some 3 to 4 million tons. Thus, carryover stocks at the end of the 1976-77 year will be up considerably.

### LOWER WORLD PRICES

Sugar prices were very stable from mid-1975 to July 1976. Then there was a decided decline, probably precipitated by several factors. Prospects of a dismal crop in Western Europe due to lack of rainfall had prevented a price decline during early 1976. As beneficial rains increased prospects for a larger harvest, there were several other happenings that acted as price depressants. Harvests had just begun in several major sugar producing Southern Hemisphere countries and bumper crops of cane were being cut. Other reasons included (1) re-entry of Brazil into the market after prohibiting exports for several months, (2) prospects of a larger crop in the USSR with little or no imports needed from countries other than Cuba for the next year, (3) buyers restricting purchases as they were well stocked, (4) increasing use of high fructose corn syrup, and (5) more long-term arrangements being made.

### LONG-TERM ARRANGEMENTS

The long-term arrangements may account annually for about 5 million tons of sugar, out of a total of around 15 million tons of free market sugar. There are some 10 exporting countries and a like number of importing countries involved. The largest contracts are those between United States firms and the Philippines, and a 5-year contract for 3 million tons between Australia and Japan. The latter is the only long-term arrangement for a specified price. The others are tied in some way to prevailing prices in the market. Following the expiration of the International Sugar Agreement at the end of 1973 and the demise of the U.S. Sugar Act at the end of 1974, it was to be expected that there would be a number of bilaterals. Most of these arrangements run through 1980, and will probably have some dampening effect on prices.

### PROCESSING CAPACITY EXPENDING

Although recent sugar prices have been below the cost of production in many producing countries, there are still plans for building a num-



ber of new mills. The construction of new mills will be primarily in the developing countries. Due to the large investment required for mill construction, there is a tremendous amount of consideration given before deciding on building facilities.

The biggest unknown in any feasibility study is the prospect for the market. Countries contemplating substantial increases in facilities include Mexico, Malagasy, Ivory Coast, Tunisia, Nigeria, Syria, Sudan, Tanzania, Panama, Venezuela and Indonesia. With consumption expanding about 2 million tons per year, it would take 30 or more new mills each year to keep up with growing requirements. Therefore, there could be construction of even more milling facilities.

#### HIGH-FRUCTOSE CORN SYRUP PRODUCTION INCREASING

The use of high fructose corn syrup (HFCS) has so far been largely confined to the United States. In 1976 the use in the U.S. may amount to 800,000 to 850,000 tons, up from 500,000 tons in 1975. A similar further increase is likely for 1977. There has, however, been some slow down in the planned expansion of HFCS processing facilities due to the narrowing of the gap between prices of sugar and HFCS. HFCS production in the EC in 1975 is estimated at 100,000 metric tons, and capacities are being expanded to about 500,000 metric tons. A 100,000 metric-ton facility is being built in the Netherlands as well as another such facility in the United Kingdom. As this product is being produced in developed countries, the developing countries will be affected in regard to the sugar they export to such countries.

#### THE EUROPEAN COMMUNITY

Production of sugar in the EC during 1976-77 will somewhat exceed consumption requirements. As 1.3 million metric tons are to be imported by the United Kingdom from former Commonwealth Agreement developing supplier countries, there will be at least 1 million tons of sugar available for export. This excess was produced despite severe drought, especially in France and the United Kingdom. Prices of sugar beets and of sugar were increased by about 8 percent for 1976-77 under the Common Agricultural Policy for sugar. Acreages and production in the EC are not likely to be reduced substantially in the next year. However, in France there may be some shift from sugar beets into grains.

#### INTERNATIONAL SUGAR AGREEMENT

A prime concern in the near future for both importing and exporting countries are the preparations for the negotiation of an International Sugar Agreement. It is planned to have a negotiating conference in Geneva under the auspices of the United Nations Conference on Trade and Development beginning in April 1977. Particular attention will be given to buffer stock schemes, an export quota system backed by intervention stock scheme or an export quota system backed by minimum stock provisions. Figuring prominently in development of any new ISA will be the status of bilateral agreements, prices at the time of the conference, and the outlook for United States supplies.

Almost everyone remembers 1974 as the year of sugar. The year 1977 might be considered the offspring of that year. There will be much activity on the sugar front in 1977, but prices almost certainly will not increase to the unprecedented heights of 1974. The record high prices of 1974 brought about a quick response in increased acreages in beet areas of the United States and Western Europe. Although it took longer in the cane producing areas, they also increased production. At the same time that production was increasing, there was a considerable drop-off in consumer demand in such countries as Canada, Japan and the United States. Worldwide production for 1976-77 will outstrip consumption and carryover stocks at the end of the year will amount to about 20 million metric tons. This would be about one-fourth of the world's annual requirements, and while not excessive, is ample for normal operations of refiners and distributors.

The International Trade Commission is now in the middle of hearings to determine whether the domestic sugar industry is being harmed by increased imports. While the ITC normally would have six months or until April to submit its report, they have been instructed to speed it up. The outcome of this investigation could have a bearing on future U.S. sugar policy.

# DOMESTIC OUTLOOK FOR SWEETENERS

(By Fred Gray, Economic Research Service, USDA)

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## SUGAR

### THE WORLD SITUATION

A record 1976-77 world crop is anticipated.\* As last year, most of the anticipated increase is coming from expanded sugarbeet acreage, even though substantial increases have occurred in sugarcane production, especially in the Southern Hemisphere.

World consumption in 1976-77 appears likely to increase about 2.2 million short tons to over 91 million short tons (raw value). While severely depressed by high prices during the period 1974-75, consumption seems to be returning to the more normal pattern of an annual increase of 2 to 2.5 million tons.

Since the prospective increase in world production is significantly larger than the projected increase in consumption, world sugar stocks are expected to be up substantially at the end of 1976-77. This prospect has contributed to significantly lower price levels in recent months.

### THE U.S. SITUATION

#### *Production down—imports up*

*U.S. Production.*—Harvested sugarbeet acreage in the United States is expected to total 1.48 million acres, down slightly over 2 percent from a year ago. While drought and poorer than normal growing conditions in Michigan, Minnesota and North Dakota have lowered the U.S. average per acre yield estimate, fractionally higher yields in other States supported the recent estimate of 19.4 tons per acre. The current sugarbeet crop may total about 28.7 million tons, down about a million tons or 3 percent from last year's crop.

Sugarbeet production is expected to increase in 8 of the 18 commercial sugarbeet growing States. About 31 percent of the 1976-77 beet crop is expected to come from California and Arizona (Southwest), nearly a fourth from the Great Plains States, not quite a fifth from the Pacific Northwest (including Utah), about 18 percent from the Red River Valley (Minnesota and North Dakota), and 9 percent from the Great Lakes States (Michigan-Ohio and Maine).

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\*The crop year discussed here includes all production which begins not earlier than May of one year, not later than April of the following year, even though actual production may fall outside the May/April season.

Based on October 1 growing conditions, and assuming a normal sugar recovery, this year's sugarbeet crop is expected to produce about 3.75 million tons of sugar (raw value), down slightly from the 4 million tons produced in 1975-76. With the exception of the Red River Valley, there will be less strain on processing facilities this year than in 1975-76.

*U.S. Sugar Cane.*—U.S. harvested acreage of sugarcane will likely total 782,000 acres this year, up 1 percent from 1975. Acreage for harvest expanded slightly in Florida and Texas, while declining slightly in Hawaii and Louisiana. The projected average U.S. cane yield of 36.5 tons per acre is down fractionally from 1975, primarily because of slightly lower yields in Florida. Yields in Hawaii and Texas increased slightly from 1975 levels, while Louisiana yields were unchanged.

Current estimates indicate the 1976-77 crop will total about 28.5 million tons, matching the level of the preceding crop. This year Florida will produce about 38 percent of domestic production, Hawaii about 33 percent, Louisiana 24, and Texas 5 percent. Given October 1 growing conditions, sugarcane acreage currently indicated for harvest (less deductions for seed cane acreage); and a normal sugar recovery rate for each producing area, production of 2.80 million tons of cane sugar (raw value) is indicated, down about 100,000 tons from last year. Most of the prospective decline is anticipated in Hawaii, which has been suffering from lack of rainfall.

*U.S. Imports.*—For the first 8 months total U.S. imports of 3.05 million tons were running over a fourth higher than a year ago. Based on the trend for the most recent 12 consecutive months, total U.S. imports for calendar year 1976 will likely total around 4.5 million tons, up over 15 percent (over 600,000 tons) from last year's 3.9 million ton level.

#### *U.S. utilization up in 1976*

*Deliveries.*—U.S. sugar deliveries totaled about 3.5 million short tons (raw value) during the third quarter of 1976, down about 50,000 tons, (2 percent) from the third quarter of 1975. This year, only deliveries in the months of July and October have been less than monthly deliveries a year ago.

Through the first 10 months, sugar deliveries totaled 9.22 million tons, up over 10 percent from deliveries in the first 10 months of 1975. However, monthly deliveries in late summer and early fall have been running behind deliveries during the same period a year ago.

Based on the trend for the most recent 12 consecutive months, deliveries for calendar year 1976 will likely total around 10.8 million tons, up sharply from the 10 million ton figure in 1975. With the record 1975 sugarbeet crop and a large 1976 crop anticipated, U.S. beet sugar deliveries are expected to exceed the 1970 record of 3.57 million tons, and perhaps total near 3.8 million tons. Thus, cane deliveries are expected to total about 7 million tons.

*Consumption.*—Based on the trend in deliveries for the first 10 months, per capita refined sugar consumption this year seems likely to total near 94 pounds. While this year's level is up from last year's low level of 90 pounds it falls short of the 97 pounds recorded in 1974 and

the 100 pound plus-years of 1969-73. Per capita beet sugar consumption will likely total near 32 pounds, up sharply from 29 pounds last year, and only 26 pounds in 1974.

*U.S. Exports.*—For the first 9 months this year, U.S. refined sugar exports totaled nearly 85,000 short tons, down sharply from the 175,000 tons exported during the same period a year ago. If the present trend continues, calendar year exports this year could approach 80,000 tons, a level above the 10,000 ton level typical of years prior to 1974 but down sharply from the 1975 level of over 200,000 tons. Canada, our most important export market, continues to receive more than half of our exports.

*U.S. stock levels down seasonally but larger than a year ago*

On November 1, total domestic stocks of 1.57 million short tons (raw value) were up about 150,000 tons from a year ago. November 1 cane sugar stocks (both raw and refined) nearly matched last year's level—738,000 tons. Beet sugar stocks of 740,000 tons were up over 120,000 tons over the November 1 level of 1975. Mainland cane stocks of about 100,000 tons are up about 40,000 tons from November 1 a year ago.

Beet sugar companies have marketed sugar rather aggressively during 1976 in an effort to move the 4.03 million tons of 1975-76 crop sugar to market. With expectations of a slightly smaller 3.75 million ton crop this fall, and prospects of some further reduction in acreage in 1977, beet sugar companies may be less aggressive in marketing sugar in the coming year.

#### THE PRICE SITUATION

*Sugar prices lower*

*Raw Sugar Prices.*—U.S. raw sugar prices remained fairly stable during the October 1975-July 1976 period, averaging slightly over \$15 per hundredweight (New York Spot). Average monthly prices varied \$1 per hundredweight or less from the 10-month average. However, prices weakened in mid-July as the outlook for a good 1976-77 harvest began to emerge, despite the European drought. In September, prices averaged \$9.80 per hundredweight for the month.

With price levels below U.S. production costs, the President on September 21 raised the duty on imported raw sugar (96 percent from \$0.625 to \$1.875 per hundredweight. In taking this action, the President emphasized that this was an interim measure, and supported the request of the Senate Finance Committee for an investigation by the U.S. International Trade Commission under Section 201 of the Trade Act of 1974 to determine whether or not increased imports are a substantial cause of serious injury or the threat thereof, to the domestic industry producing a like or directly competitive product. The Commission has until March 16 to report to the President. But at the President's request, the Commission has indicated it will expedite its investigation.

In October, the New York spot price recorded the immediate impact of the September 21 duty increase of 1.25 cents per pound. The New York spot price for raw sugar increased from \$10.75 per hundredweight on September 21 to \$11.50 on October 8. Since October 8 the price has followed the world price downward. The differential between the world and New York spot price, however, has widened to about 2.6



cents per pound in contrast to 1.4 cents per pound on September 21. United States raw sugar prices in early November were about \$10 per hundredweight, compared with \$15 in November 1975, and the record high of \$57 per hundredweight recorded in November 1974. Thus, raw sugar prices today are two-thirds of last November's monthly average and less than one-fifth of the November 1974 high.

*Wholesale Refined Prices.*—U.S. wholesale refined cane sugar prices have tended to follow changes in U.S. raw sugar prices. Since U.S. raw prices were relatively stable earlier this year, wholesale refined cane sugar prices during the October 1975–July 1976 period remained within a relatively stable \$20 to \$22 per hundredweight range. Wholesale refined beet sugar prices exhibited an even greater degree of stability, particularly during the December 1974–July 1975 period. During this period they stayed within a \$18.30 to \$18.71 per hundredweight range.

Wholesale refined sugar prices have since followed the recent decline in raw sugar prices. Decreases in wholesale prices vary from \$4 to \$4.75 per hundredweight. Present wholesale list prices for refined sugar are in the neighborhood of \$14 per hundredweight for beet sugar and \$15 per hundredweight for cane sugar. Actual prices vary somewhat from area to area depending on competition.

*Retail Sugar Prices.*—Retail sugar prices tend to lag changes in raw and wholesale refined sugar prices. Since raw sugar prices frequently change direction slightly from month to month, it was not unusual for retail sugar prices to have increased slightly in August (reflecting the early July raw price increase) while raw and wholesale prices declined in August. The U.S. average retail price is expected to decline slightly for several months from the September level of 22.9 cents per pound (5-lb. package).

*Prices of Sugar-containing Products.*—While retail sugar prices are much lower than in early 1975, prices of sugar-containing products have shown remarkable price stability for the last 12 consecutive months. While both prices of raw and wholesale refined sugars are now down significantly from early July, retail prices for products containing sugar are generally not expected to decline much in the coming months. In fact, a few could increase if prices of other inputs move upward.

Prospective high cocoa prices may contribute to higher retail candy prices or smaller bar sizes, or both. In other instances, higher manufacturing costs for labor, rent, utilities, packaging, and transportation are expected to keep most sugar-product prices from declining very much.

## CORN SWEETENERS

TOTAL DELIVERIES FOR FOOD USE ARE UP BUT LESS THAN EARLIER EXPECTED

Total domestic shipments of corn sweeteners for food use are expected to top 3.3 million short tons dry basis (DB) this calendar year, up from under 3 million tons last year. Most of the increase is expected to come from high-fructose corn syrup (HFCS), whose shipments this year may total 800,000 to 850,000 tons (DB) up from about 500,000 tons last year. Dextrose shipments for food use may total over

500,000 tons (DB)—up a few thousand tons from 1975. Corn syrup (other than HFCS) shipments this year will likely fall slightly short of 2 million tons (DB).

Low and declining sugar prices have slowed corn sweetener expansion this year, particularly HFCS expansion. Early expectations of a 1 million ton HFCS market this year have now fallen to 800,000 to 850,000 tons. There are currently 6 HFCS producers, and another 1 or 2 to come on stream next year. Largely because of current low sugar prices, 3 firms have deferred plans to build HFCS capacity. Even so, current HFCS capacity is more than adequate to meet current market needs at prevailing price levels.

#### PER CAPITA CONSUMPTION TO INCREASE

Per capita consumption of corn sweeteners is expected to total about 31 pounds (dry basis (DB)) this year, up from 28 pounds in 1975. Most of the prospective increase will come from HFCS. High fructose consumption may total near 8 pounds (DB), up from 4.7 pounds in 1975. Dextrose consumption is expected to total 4.9 pounds (DB) up fractionally from 4.7 pounds in 1975. And, corn syrup consumption (other than HFCS) is expected to total over 18 pounds (DB)—about the same as in 1975.

#### CORN SWEETENER PRICES DECLINING

Corn sweetener prices declined significantly in the third quarter of this year. The September Decatur, Illinois HFCS price of \$11.90 per cwt dry basis (DB) was down from \$14.90 per cwt recorded in June. Current low sugar prices make it difficult for HFCS producers to maintain a 10 to 15 percent differential under sugar prices, even in the Midwest. And, with a 1,000 to 2,000 mile transportation charge, it becomes more difficult. This explains perhaps why some HFCS firms temporarily have pulled out of California.

Corn syrup in Illinois was selling for about \$9.34 per cwt (dry basis) in September, down from \$11.84 per cwt in June. Dextrose prices were also lower in September.

While low sugar prices are admittedly squeezing U.S. corn refiners, (one firm has stated they have been selling HFCS at a loss) the squeeze could be worse. With the large 1976 corn crop, corn prices have declined, thereby helping HFCS producers. Further, prices of the valuable byproducts, polyunsaturated corn oil, and corn gluten feed and meal, have increased. Together, lower corn prices and high byproduct prices have helped corn refiners offset low sugar prices.

#### OTHER SWEETENERS

##### HONEY

*U.S. honey supplies substantially larger than last year's level*

While weather has generally been good in the United States for producing sugarbeets, cane, and corn, it has not been exceptionally good for producing honey. This year's honey production may fall slightly short of last year's level of 197 million pounds.

But, while 1976 U.S. production may be down, U.S. imports are expanding sharply, and could total 75 million pounds in calendar 1976 compared with 46 million pounds in 1975. U.S. exports appear likely to total little more than 5 million pounds in calendar 1976.

If the present indications for U.S. production, imports, and exports turn out about as now expected, total domestic disappearance for calendar 1976 could exceed last year's 240 million pound level by 20 to 30 million pounds.

#### *U.S. International Trade Commission finding*

On June 29 the U.S. International Trade Commission recommended to the President that a 30 percent ad valorem tariff (an additional tax of 30 percent of the market value of honey for U.S. imports in the exporting country) be assessed on honey imports in calendar years 1976, 1977, and 1978. The President concluded however that immediate import relief for honey was not in the national economic interest. In his action, he instructed the Secretary of Agriculture to undertake additional research on the importance of pollination, to identify problem areas, and to recommend appropriate solutions as needed.

#### MAPLE SYRUP

U.S. maple syrup production totaled nearly 930,000 gallons in 1976, down nearly a fourth from 1975. The decline resulted from unseasonably early warm weather in late winter and early spring.

Maple syrup imports will likely total nearly 9 million pounds this year, compared with 6.7 million pounds last year. Maple sugar imports are likely to total near the 1.4 million pound level of last year.

#### NONCALORIC SWEETENERS

Earlier this year the Food and Drug Commission turned down a request by a major U.S. manufacturer to produce cyclamate for use in foods and beverages. This decision is being appealed.

Substantial quantities of saccharin continue to be imported and produced domestically. Imports this year are running behind the pace of 1975. Saccharin imports for calendar 1976 could total nearly 2.5 million pounds compared with 3.1 million pounds in 1975. Per capita saccharin consumption this year is estimated at 8 pounds (sugar sweetness equivalent) up from 7 pounds in 1975.

#### OUTLOOK FOR 1977

##### SUGAR

The prospective record 1976-77 sugar crop is expected to provide ample supplies to meet anticipated consumption requirements. With world consumption expected to increase about 2.2 million tons world sugar stocks could increase considerably by the end of the 1976/77 crop year, in contrast to a half a million ton increase in 1975-76.

Current low sugar prices are likely to reduce domestic sugarbeet plantings next year. The January 21 Crop Intentions Report will provide an early indication of the severity of the cutback. Trade sources believe the cutback in sugarbeet plantings could range from 15 to 25

percent, with variations existing between areas. The reduction in California could be significantly larger than in the Red River Valley, for example, since crop alternatives may be more favorable in California.

U.S. sugar deliveries next year are expected to remain around 10.8 million tons, raw value. Per capita consumption of refined sugar could fall short of this year's prospective 93.8 pounds, however, population increases are expected to maintain total sugar consumption near the current level.

Sugar use in beverages (largely in soft drinks) is expected to increase over this year's level. However, prospective higher candy prices will probably result in less candy consumption, and thus, less sugar and corn sweetener use in candy next year.

World supplies are likely to maintain downward pressure on sugar prices in the short run, with the prospect that the intensity of the pressure could be reduced as intentions for the 1977 crop begin to unfold. Should prospects for a large crop and a further build up in stocks evolve, prices for the remainder of the 1976/77 crop year would remain under pressure. Current prices do suggest however, some contraction in U.S. sugarbeet acreage is likely. Whether it will be sufficient to materially impact on world prices is uncertain at this time since production possibilities in other producing countries are not known and could offset the impact of a decline in U.S. acreage. Further, U.S. producer planting intentions will be influenced by expectations of future prices, which are likely to reflect not only supply-demand expectations but an assessment of possible U.S. executive or legislative action, or a new International Sugar Agreement which could enhance the domestic price. In summary, a sharp upturn in prices is not immediately foreseen. Some strengthening could occur if projections for the 1977-78 crop do not suggest a further build up in stocks in 1977-78.

#### CORN SWEETENERS

United States corn sweetener shipments are expected to increase overall next year. Most of the increase is expected to come from high fructose corn syrup. If current low sugar prices continue the increase in total corn sweetener shipments for food use in 1977 will likely range from 200,000 to 400,000 tons, dry basis. With significantly higher sugar prices, the increase would be larger.



## OUTLOOK FOR COTTON

(By Russell G. Barlowe, Agricultural Economist, Economic Research Service,  
USDA)

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These are exciting times. As you know, 1976 marks the 200th anniversary of the founding of our Nation. And today marks the 37th birthday of yours truly. During my relatively brief existence, I have grown to appreciate this great country and the way the free enterprise system functions. I have closely observed this dynamic system at work in the field of agriculture in general and cotton in particular. Indeed, the forces of supply and demand are at work today, sending out signals concerning how much cotton will be consumed and exported next season, and just as important, how much cotton will be needed to fill these needs. But before we examine the likely impact of these forces on the cotton outlook for 1977, I would like to set the stage by taking a brief look at the important relationship between the health of the general economy and textile activity.

The recent recession vividly illustrates the dependence of our textile industry on general economic activity. As increasing inflation and unemployment reduced consumer spending for apparel and household goods in 1974, textile mills reacted quickly to avert a further buildup in already large inventories. As a result, mills sharply curtailed operations in late 1974 and early 1975. Having achieved a better balance between textile inventories and depressed sales, mill activity recovered sharply in 1975. By the end of last year, mill consumption of cotton, wool, and manmade fibers had rebounded to more normal levels.

After hitting a peak in late 1975, U.S. textile activity has tapered off this year as retail sales of nondurable goods, such as apparel and household textile products, have suffered at the expense of "big ticket" durable items. In an attempt to maintain inventories at manageable levels, textile mills have once again slowed down production lines in recent months. Most analysts believe that this pause in textile activity, which closely parallels the recent hesitation in general economic recovery, is temporary. Fiber consumption is expected to rebound in the fourth quarter and increase further in 1977 based on prospects for continuing general economic expansion, meaning higher consumer incomes and employment.

For calendar 1976, I estimate that mill consumption of all fibers will total nearly a billion pounds above last year's 10.6 billion. On a per capita basis, fiber use may amount to 53 to 54 pounds, up from 49½ pounds in 1975 but moderately below 1973's record high of nearly 60 pounds per person (figure 1). Both cotton and manmade fiber use are increasing about a tenth. This resurgence in domestic retail demand also is resulting in sharply larger imports of cotton textile products during this Bicentennial year.



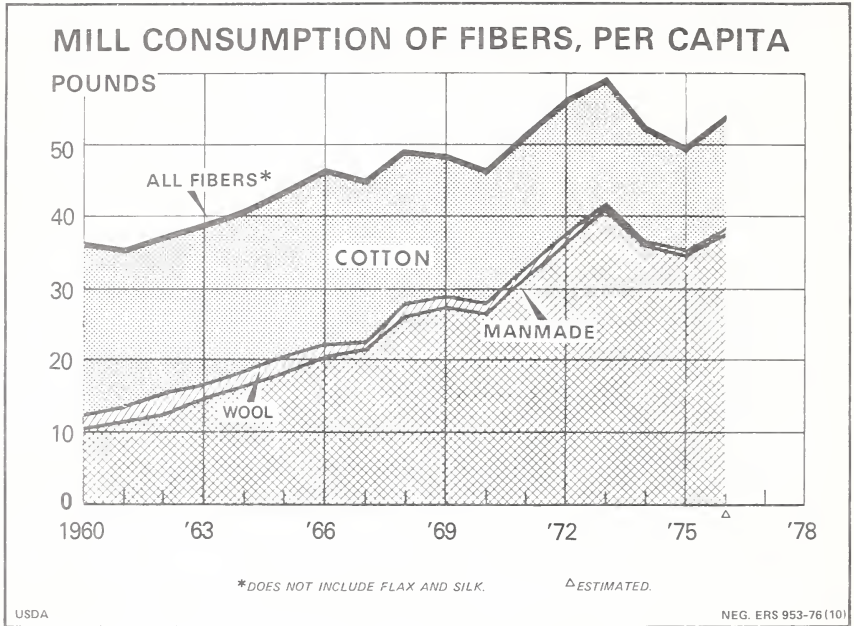


FIGURE 1

## CURRENT SITUATION AND OUTLOOK FOR 1976-77

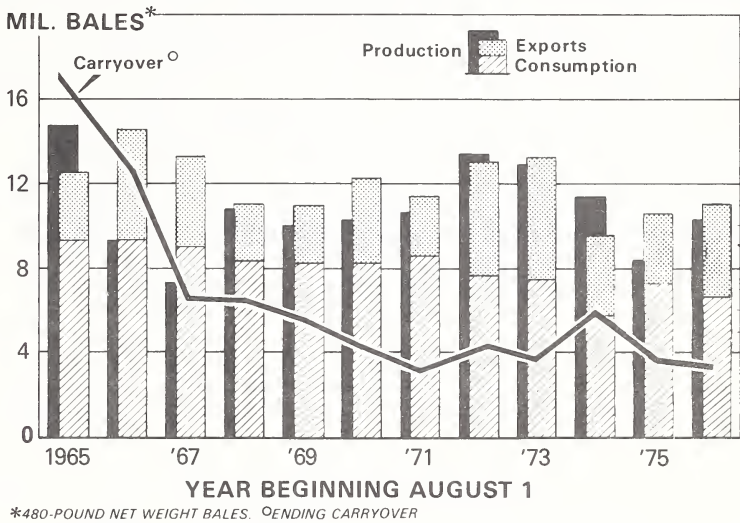
Now let's take a closer look at 1976-77 cotton prospects. Relatively strong demand in the face of tightening supplies highlights the outlook. This season's supply of around 13.6 million bales is 500,000 below the 1975-76 level and the smallest in 53 years. Meanwhile, combined domestic use and exports may exceed production by 10 percent or so. Thus, stocks are being worked down and may drop 750,000 bales during 1976-77 (figure 2).

We kicked off this season on August 1 with cotton stocks of 3.7 million bales, down 2 million from a year earlier. Based on November 1 indications, the current crop is placed at just under 10 million bales, sharply above the abnormally small 1975 crop but below early-season indications. So supplies are down moderately. On the demand side, sharply larger exports are expected to more than offset moderately smaller U.S. mill use, meaning that 1976-77 disappearance will top last season's 10.6 million bales. As a result, stocks next summer may drop to near the 3-million-bale level, likely resulting in supply-demand imbalances for some staples, particularly the shorter lengths (table 1).

*Production Gain Disappointing*

The November 1 estimate of 9.9 million bales for the 1976 cotton crop, although 19 percent above 1975 output, is 8 percent below early-season indications. The downward revision reflects the impact of earlier adverse weather in several important cotton producing regions. Cotton planting generally got off to a late start in both the

# COTTON PRODUCTION, USE, AND CARRYOVER



USDA

NEG. ERS 1991-76 (10)

FIGURE 2

TABLE 1.—U.S. COTTON SUPPLY AND DISAPPEARANCE  
[Million 480-pound bales]

Item	1975-76 (preliminary)	1976-77 (estimated) <sup>1</sup>
Supply:		
Beginning stocks.....	5.7	3.7
Production.....	8.3	9.9
Total <sup>2</sup> .....	14.1	13.6
Disappearance:		
Mill use.....	7.3	6.6±.3
Exports.....	3.3	4.3±.3
Total.....	10.6	10.9±.3
Difference unaccounted <sup>3</sup> .....	-.2	-.2
Ending stocks.....	3.7	3.0±.3

<sup>1</sup> Estimated as of Nov. 12, 1976.<sup>2</sup> Includes imports.<sup>3</sup> Difference between ending stocks based on census data and level implied by subtracting disappearance from supply.

Delta and High Plains, reflecting cold, wet weather in the Delta and extremely dry conditions on the High Plains. Continuing adverse weather this fall has damaged yield prospects, particularly in the Southwest and Delta.

So, with unfavorable weather hampering crop development and harvesting activity, ginnings through October amounted to less than 4 million bales, about 37 percent of expected production. Normally, over 40 percent of the crop is ginned by this date.

The national average yield per harvested acre for the 1976 cotton crop is estimated at 435 pounds, down from 453 pounds last year and close to 10 percent below normal. But with a fourth larger acreage for harvest, domestic production is up sharply, especially in the western half of the Cotton Belt which is accounting for over four-fifths of this year's increase in U.S. output. For instance, expected output is up 34 percent in the Far West and 17 percent in the Southwest. Production gains in the Southeast and Delta are placed at around 26 percent and 5 percent, respectively (figure 3).

## COTTON: ACREAGE, YIELD, AND PRODUCTION

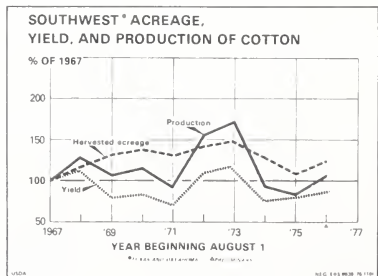
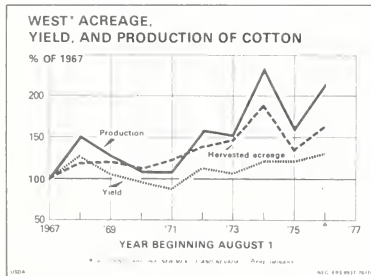
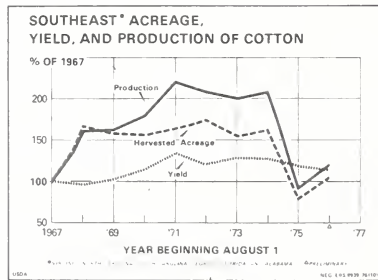
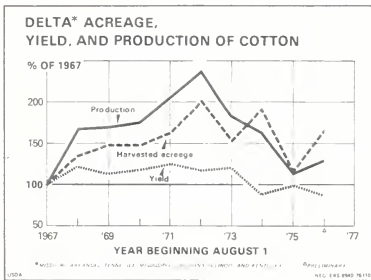
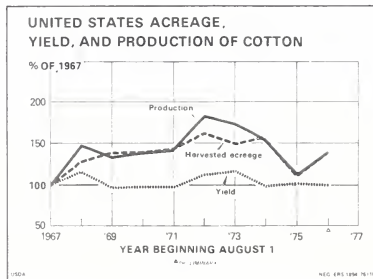


FIGURE 3

The cost of producing cotton has increased sharply in recent years. For the 1976 upland crop, the Beltwide average cost is now estimated at nearly 60 cents per pound (including land and management). This cost compares with 53 cents per pound in 1975 and 46 cents in 1974. However, it should be noted that in all 3 of these years, U.S. yields averaged 5 to 10 percent below normal, thus boosting average costs per pound.

### *Roller Coaster Cotton Prices*

The roller coaster-like movement in cotton prices during recent years can be easily seen in figure 4. As supplies dwindled and demand strengthened in 1975-76, prices climbed steadily, hitting a peak in early July. Prices then fell but have crept up again since August, primarily reflecting deterioration in 1976 production prospects and tightening supplies.

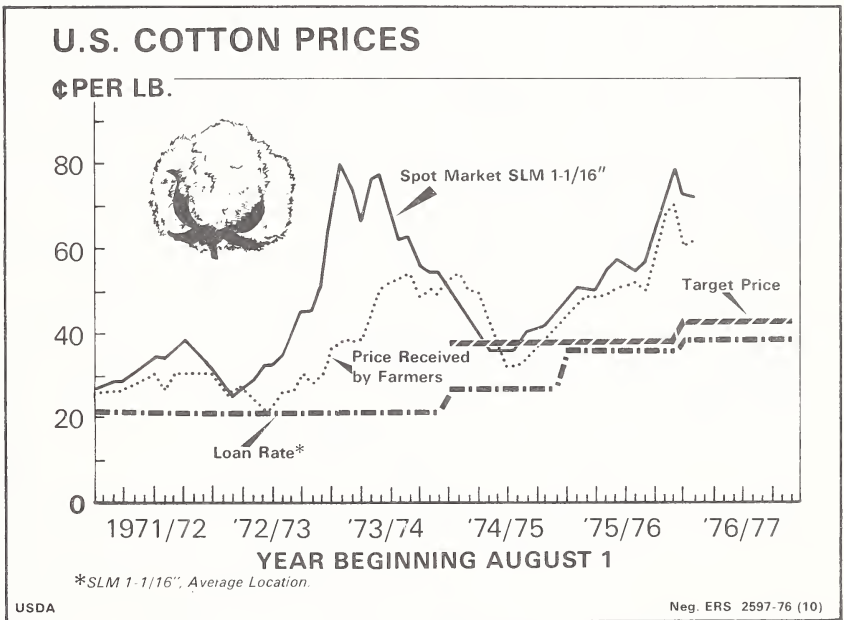


FIGURE 4

As of early November, the spot market price of base grade SLM 1 $\frac{1}{16}$ -inch cotton was nearly 80 cents per pound, up from 70 cents on August 1 and over 25 cents above a year earlier. Prices received by farmers also are relatively high, averaging about 62 $\frac{1}{2}$  cents per pound during August-October, up 15 cents from a year earlier. As a result, prices are well above loan and target price levels. The value of the 1976 cotton crop, including lint and seed, may top \$3 $\frac{1}{2}$  billion and nearly equal the 1973 record.

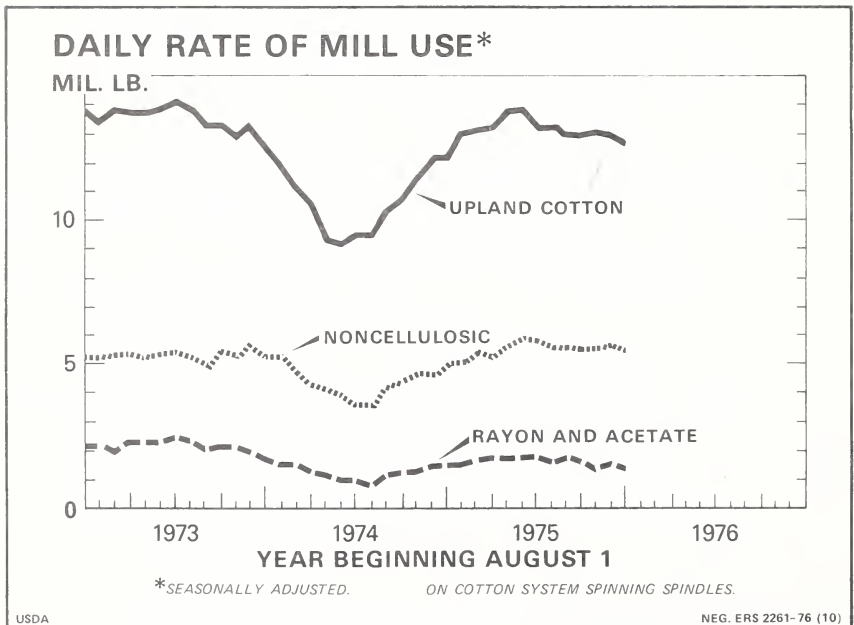
As cotton prices trended up last spring and summer, forward crop contracting picked up sharply. Farmers booked about one-half their 1976 production, compared with only 10 percent last year. By regions, forward contracting of the current crop ranges from nearly a fourth in the Southwest to nearly three-fourths in the Delta. Contracting in

the Southeast and Far West stands at 52 percent and 69 percent, respectively.

### *Mill Use Down*

After recovering sharply from the 1974-75 recession, use of all fibers by U.S. textile mills has eased off since January. In the case of cotton, the seasonally adjusted daily rate of consumption has trended down about  $1\frac{1}{2}$  percent per month during 1976, reflecting some softness in overall retail textile demand and the desire of mills to keep inventories under close control (figure 5). As mill consumption during this period reflected cotton prices only slightly above man-made fiber prices, there has not been any significant substitution of manmade fibers for cotton. However, market losses to manmade fibers are likely later in the season as mills are confronted with cotton prices well above manmade fiber staple. During August and September, U.S. textile mills paid an average of nearly 80 cents per pound for Middling  $1\frac{1}{16}$ -inch cotton, compared with 52 to 53 cents for rayon and polyester staple. A year ago, cotton was less than 10 cents per pound more expensive (figure 6). The price differential is expected to narrow somewhat in coming months as rayon list prices were increased 4 cents per pound in October, and trade sources indicate that polyester staple prices may soon follow suit in order to bolster sagging profit margins and encourage the additional capacity needed to satisfy projected future growth in textile demand.

After consuming cotton at an annual rate of 6.9 million bales in August, U.S. mills cut use 3 percent in September—to an annual rate of 6.7 million. With the current price disparity between cotton and



**FIGURE 5**



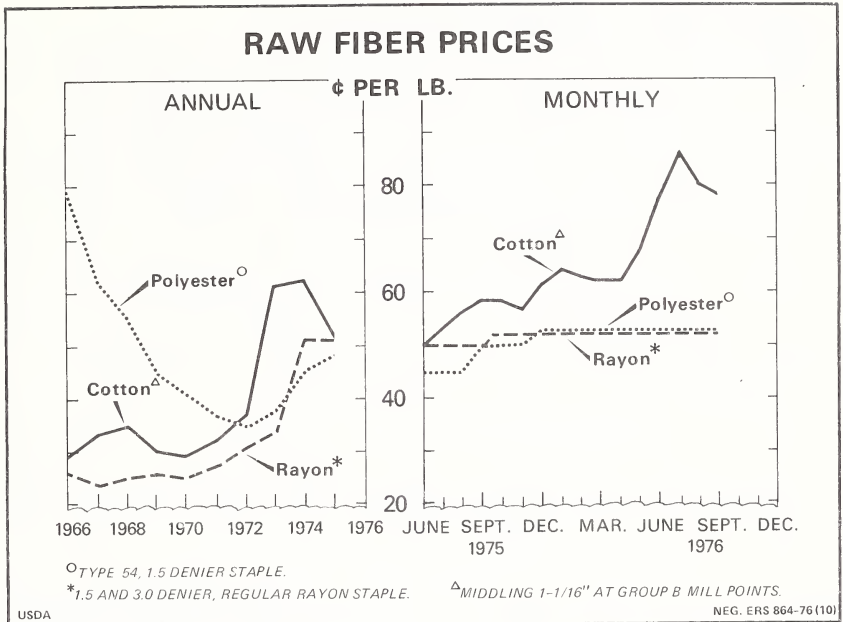


FIGURE 6

manmade fibers, further slippage in cotton use is indicated for 1976-77. For the season as a whole, mill consumption may total about 6.6 million bales ( $\pm 5$  percent), down from  $7\frac{1}{4}$  million in 1975-76.

Continuing cotton research and promotion may hold the key to improving cotton's competitive position. About \$12 $\frac{1}{2}$  million is budgeted for 1977 from upland cotton producer contributions under the Cotton Research and Promotion Act of 1966. As you know, producers will have an opportunity to increase this amount through a referendum this winter to assess themselves up to 1 percent of the value of a bale of cotton. These research and promotion funds would be in addition to the current \$1 per bale assessment.

There has been strong demand for cotton products at the consumer level over the past year. All-cotton denim and corduroy goods have played a big role in cotton's success. However, close to a fifth of this retail demand is being satisfied by textile imports, which may total a record  $1\frac{1}{2}$  million equivalent bales of raw cotton during calendar 1976. These imports are originating mainly in Hong Kong, India, Pakistan, and the People's Republic of China. Demand for foreign-produced cotton textiles is expected to remain strong in coming months as domestic supplies tighten.

U.S. exports of cotton textiles also are up—to the highest level in nearly two decades—reflecting some recovery in foreign demand from the worldwide recession. Shipments this year may total the equivalent of around 0.85 million bales, compared with 0.74 million in 1975. Still, exports will fall far short of textile imports, meaning that the trade deficit will widen to about 0.6 million bales (figure 7).



FIGURE 7

#### *Strong Export Demand*

U.S. raw cotton exports are expected to increase sharply during 1976-77, based on August-September shipments of over 0.6 million bales and undelivered sales of an additional 2.8 million. With further sales likely, this season's exports may total 4 to 4½ million bales, up from 3.3 million in 1975-76.

The big pickup in export activity reflects continuing modest recovery in foreign textile activity, coupled with extremely tight cotton supplies abroad. Production has been hit by extremely adverse weather in several traditional exporting countries. For instance, heavy rains and flooding during mid-August have cut production prospects in Pakistan. Drought conditions in Central America, particularly Nicaragua, have caused some damage. About the only country outside the United States with a significant export availability is the USSR, where the 1976 crop may nearly equal the record 1974-75 level of 12.9 million bales.

Based on anticipated foreign cotton consumption of around 56 million bales and production of 49 to 50 million this season, there exists an export potential for U.S. cotton of over 6 million bales, given no foreign stock changes. But with limited U.S. supplies, foreign stocks may be drawn down another 2 million bales or so from the already low August 1, 1976, level of 20 million. So world stocks—including U.S. stocks—next August may total about 21 million bales, the smallest carryover in 5 years and only about a 4 months' supply for textile mills next fall.

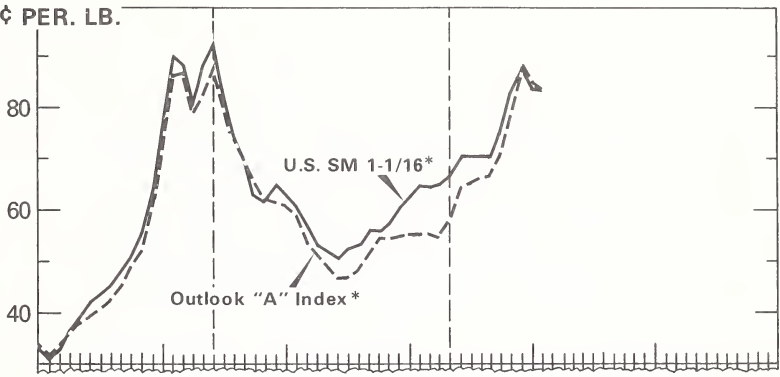
Net export sales of U.S. cotton totaled over 4 million bales during January-August, reflecting strong demand and competitive U.S. prices. For instance, during July and August, the U.S. price of SM

1 $\frac{1}{16}$ -inch cotton in Northern Europe averaged slightly below competitive foreign growths. In late 1975, U.S. cotton was around 10 cents per pound more expensive than foreign cotton.

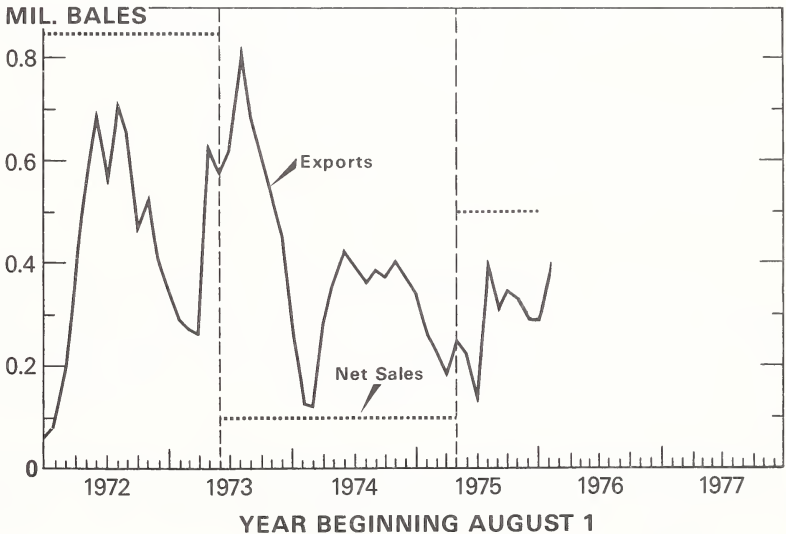
However, export sales activity has slowed recently, reflecting a further tightening in U.S. supplies and less competitive prices. Since mid-August, U.S. sales have been running only about one-third the January–August monthly average of 0.5 million bales (figure 8).

## U.S. COTTON EXPORTS AND PRICES

¢ PER. LB.



MIL. BALES



\* C.I.F. NORTHERN EUROPE.

USDA

NEG.ERS 2263-76 (10)

FIGURE 8

Although the current relatively subdued level of activity may continue for some time, it should be noted that we only have to sell less

than a million bales to reach our 1976-77 export estimate of 4.3 million.

The U.S. share of world cotton trade will in all likelihood increase sharply during 1976-77. Limited foreign competitive supplies will help boost our share to about one-fourth, compared with 18 percent last season. Global exports may drop over one-half million bales below 1975-76's 18.4 million (figure 9).

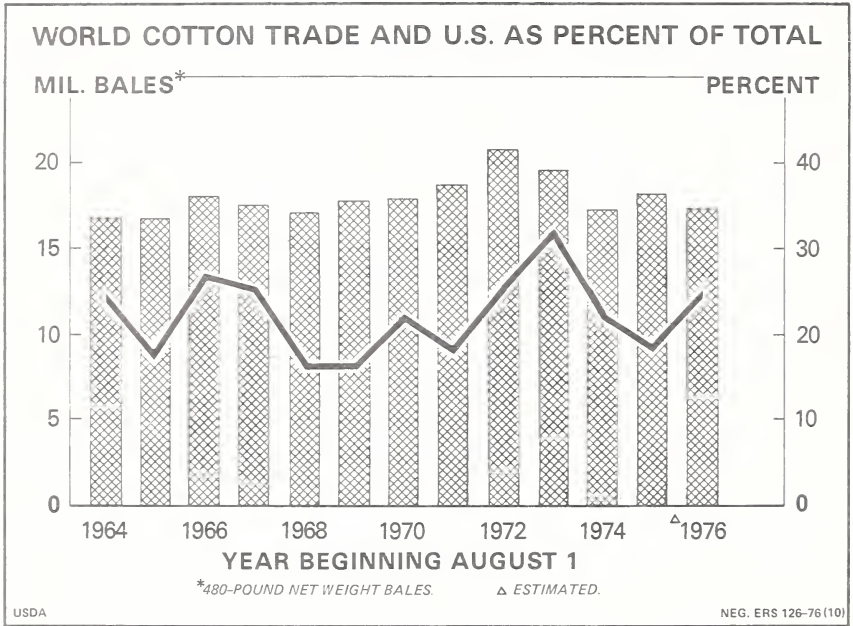


FIGURE 9

#### OUTLOOK FOR 1977-78

Now let's shift our thinking to the outlook for next season. As I stated earlier, we can look for a smaller U.S. cotton carryover next summer, perhaps around the 3-million-bale level. However, a larger 1977 crop could certainly materialize. On the demand side, I foresee continued relatively strong demand in 1977-78. Export prospects in particular look good.

#### *1977 upland cotton program*

The Agriculture and Consumer Protection Act of 1973 will expire with the 1977 upland cotton crop. Major provisions of the 1977 program include:

- A preliminary loan rate of 42.58 cents per pound for Middling 1-inch cotton (micronaire 3.5 through 4.9) net weight, at average U.S. location, up 5.46 cents from the current loan rate.
- A national production goal of 13 million bales, compared with 12.4 million this year.
- A national base acreage allotment of 11 million acres, the same as in 1976.
- No cropland set-aside or conserving base requirements as conditions of program eligibility.

- A \$20,000 payment limitation per producer of cotton, wheat, and feed grains.

The target price for 1977 crop upland cotton will be announced in late January or early February. Current calculations indicate a target price of 49 to 50 cents per pound, compared with 43.2 cents for the 1976 crop.

### *Production prospects*

There is growing speculation concerning 1977 cotton crop prospects. Although current price relationships among cotton, soybeans, grain sorghum, and other competing crops point to cotton acreage considerably above the 11¾ million acres planted in 1976, there is uncertainty over the exact level. It is certain, however, that if current prices for these crops prevail at planting time next spring, there will be sharply increased plantings of cotton in the Southwest and Far West. Moving eastward, more attractive soybean prices will limit expansion in cotton acreage in the Delta and Southeast, as will relatively high production costs and risks throughout the Cotton Belt. Still, given current price levels, U.S. farmers may plant 12 to 13 million acres, compared with 11.8 million last spring.

So what about cotton production prospects? In addition to the level of acreage, yields will be a major factor in determining the size of the 1977 crop. As illustrated in figure 10, if we assume around 12½ million acres are planted and yields average a more normal 480 pounds per harvested acre, production would total nearly 12 million bales. However, if yields should again approximate the poor level of the past 3 years, then output would amount to only around 11 million bales. On the other hand, if yields rebound to the relatively high 1972-73 average, production would total close to 12½ million bales, over 2 million above the 1976 crop.

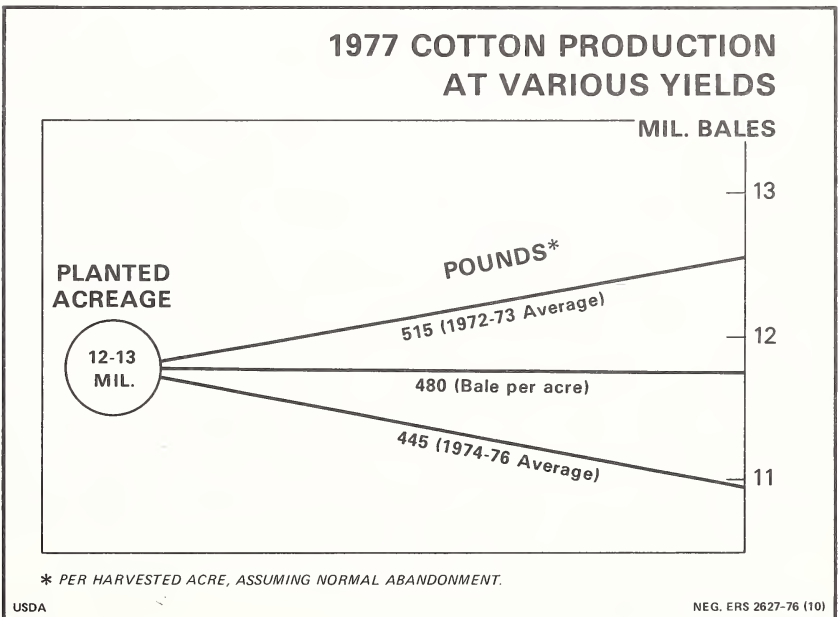


FIGURE 10



*Disappearance prospects*

The outlook for 1977-78 cotton disappearance is less optimistic. U.S. mill use will continue to depend heavily on overall textile activity and the health of the general economy. Textile imports also will play a crucial role as they compete with U.S. cotton for domestic markets. As discussed earlier, I look for cotton mill use to decline during the current season, reflecting larger manmade fiber use. This means that cotton consumption may be at a relatively low level during the early months of 1977-78. However, based on continuing relatively strong demand and increased supplies for cotton, coupled with moderately higher manmade fiber prices, I expect cotton use to pick up as the season progresses. For 1977-78 as a whole, U.S. mill use may approximate this season's anticipated level.

Although my "crystal cotton boll" is a bit fuzzy, I do see definite indications of another relatively strong export market for U.S. cotton in 1977-78. With firm worldwide demand for cotton, consumption may increase further. However, the gain will be held in check by high cotton prices, which will also encourage larger foreign cotton acreage and production. Still, the continually growing need for food will tend to moderate increases in cotton plantings abroad. As a result, foreign demand for our cotton is likely to remain relatively strong at least through calendar 1977.

In summary, the signals I'm picking up today indicate a larger 1977 crop—a crop in excess of anticipated disappearance. This scenario would indicate some much-needed rebuilding in cotton stocks during 1977-78.

## CURVES AHEAD

(By David Cox, Vice President, Economic Research and Development,  
Cotton, Inc.)

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Exciting times?

Yes, they are, if by that Russell Barlowe means rapidly changing times. And in rapidly changing times, it's especially important to make an extra effort to figure out not only what's coming tomorrow, but why, as well. And those are the reasons, I'm sure, why we're all here.

For the most part, I agree with Russell Barlowe's basic findings—we will see better textile business next year; we will see domestic and foreign carryovers decline to low levels; we will export more cotton and more than make up for less domestic mill cotton use; and we will realize moderately larger domestic and foreign production next year.

But there are certain aspects of those findings, certain interpretations of those conclusions, which have not been mentioned, which are of major importance in terms of what is really going on now and why 1977 will turn out the way it will, and which are likely to be important to cotton even beyond 1977.

One question which seldom gets the attention it deserves is why a textile decisionmaker chooses to buy and process one fiber over another. People in the cotton business often believe that higher prices will lower cotton use, and that lower prices will increase cotton use. Everything else being unchanged, that is a pretty safe statement.

However, profit is the basis on which most fiber choices in the free world are made. A textile executive will choose, buy and use the fiber he believes will earn the best profit.

It is this consideration, together with the fundamental fact that cotton and the various synthetic fibers are not the same and are not fully interchangeable, that really lends excitement to the fiber marketplace.

It's a sound idea—altogether consistent with the facts of history. From 1960 to 1972, cotton took an unrelieved marketplace drubbing from polyester and other synthetics. During that period, cotton was priced appreciably lower than the increasingly popular polyester staple, its major competitor. But then an important change occurred. Since 1973, cotton has grown in popularity, first with the consumer, then with mill men who read the market accurately. Exhibit I illustrates the history of the cotton-versus-polyester battle since 1960. The price shown for polyester is the reported market price to the mill; for cotton, it is the USDA reported price for strict low middling 1½ inch, delivered to the mills in the Southeast. The marketshare of cotton in terms of domestic mill fiber consumption is shown.

Obviously, during the 1960's and early 1970's, cotton's lower price didn't help cotton. Neither did polyester's higher price hinder poly-

ester. As a matter of fact, as you can see, cotton began to compete better just about the time its price rose above the price of polyester staple.

Exhibit II shows in greater detail cotton's market performance so far during the 1970's. The solid line traces cotton's reported marketshare, but the dotted line may more accurately represent its real mill marketshare. Reported cotton mill use is exactly that—the number of cotton bales opened at the mill. It is not the same as reported mill use of synthetic fiber. Reported synthetic fiber mill use is actually shipments from the synthetic producer to the mill. It makes no difference what the mill does with the synthetic fiber when it is delivered. Whether synthetic fiber is opened or stored in the warehouse, it still counts as "mill use." Obviously, as mills go into a recession, they tend to cut back orders and work down raw fiber inventories. With mills not buying, synthetic fiber manufacturers are not shipping. This distorts reported synthetic fiber use downward and cotton use upward. Then, when business improves, mills must rebuild fiber inventories, and the opposite effect on reported fiber use occurs. The dotted line adjusts for those distortions.

The reason for getting into all of this is so that the events of the next year or so will not be misinterpreted. Over the coming year, the marketshare of cotton will decline and cotton prices will be high—much higher than synthetic prices. But we all should appreciate that the true cause-and-effect relationship runs deeper than the view on the surface. Sometimes it is not at all easy to follow.

The U.S. cotton industry has dominated world cotton trading for many years. For most of the post World War II period, U.S. Government loan rates set the tone of world cotton prices. With the advent of a domestic free market policy for cotton, much of the cotton world has been set adrift.

Our Government actually began moving toward a free market in 1966, when the loan rate for cotton was cut drastically. U.S. cotton producers responded. They learned fast. And in every year since then except one—1969—planted acreage in the United States has increased when carryover was down and decreased when carryover was up. Last spring, U.S. producers increased plantings by 25 percent. But foreign acreage went up only 5 percent. If the rest of the world's cotton production was as responsive to the market as ours, cotton supplies would be better in 1977 than they will be.

Worldwide recession in 1974 and 1975 caused world cotton use to drop. It was the first decline in 15 years. Carryover on August 1, 1975 bulged—more than a 6 month supply. Prices nosedived. Production was cut at home and abroad. The United States reacted twice as strongly as foreign producers. The production cut brought both U.S. and world carryovers down to levels that, while workable, were still very tight. Now, economic recovery continues. But cotton production is up only moderately. So a severe supply restriction is inevitable. If world cotton supplies were adequate, we would expect world use to move up by 2 million bales in 1976–77. But supplies are not adequate, and this lack of available cotton will actually lower world cotton use by half a million bales. Carryover will be brought down to rock bottom.

So cotton use and fiber marketshare will drop in the coming year. Limited availability of cotton is the cause; high prices and lower use are the effects.

We have plumbed deep to see beneath the surface. We view the picture in a different light. But that same light can illuminate the picture for both cotton producers and cotton users as they plan for next year and beyond. With higher cotton prices will come increased cotton production and availability. With increased production and availability in 1977-78 will come greater cotton use.

And what about cotton's competition in the fiber marketplace?

The current low prices and big losses that synthetic fiber producers are suffering, will almost certainly guarantee scarcity and high prices in the future—perhaps sooner than many people expect. The industry magazine *Chemical Week* hints at this in its November 3 issue: "The relative unprofitability of the past few years has put a chill on plant expansion plans. Thus it's possible that overcapacity may give way to shortages within the next several years."

As far as we can determine, no plans for totally new synthetic fiber plants have been laid over the past 3 years. When the oil embargo was imposed in 1973, one immediate, and logical, reaction of synthetic fiber producers was to reevaluate plans for new facilities—and to abrogate new plans. Most new plant construction already underway was finally allowed to proceed, although, in some cases, there were delays. Plants already underway then are the synthetic manufacturing plants now coming onstream. As the recession hit synthetic fiber producers in mid-1974, the lid on initiating new plants was screwed down tighter than ever. Synthetic industry losses—which continued and which still continue today—have sealed the lid. No company will start a new plant until it can foresee that the new plant will be profitable. That is especially true today. Any new synthetic plant started today would come onstream sometime in 1980. What do the facts of today portend for 1980?

The 1980 cost of 1 pound of polyester staple produced in a new plant will be above \$1.

The best figure we have comes from a major chemical company. But the figure is consistent with a thorough analysis done recently by a well-respected consulting firm. Producing 1 pound of polyester staple in a new plant in 1980, allowing for a 15-percent return on investment, will be \$1.03. The details are shown in exhibit III.

Exhibit III also shows a projection of 74 cents a pound for cotton. The figure is taken from an analysis widely presented over the past few months by a major synthetic fiber producer, which found that the cotton production cost in 1981 would be about 67 cents a pound, plus 7 cents a pound to get the cotton to the mill. It seems a realistic projection of costs.

Certainly we do not endorse the cost figures of a synthetic fiber manufacturer as a projection of actual fiber prices in 1980. Short-term factors can cause prices to vary from basic costs. Nonetheless, the cost figures do illustrate a basic consideration: In all likelihood, the price of polyester staple will be above cotton by 1978, and it will very likely remain above cotton for the foreseeable future.

The consideration is more than conjecture. Polyester is being hit by tremendous increases in plant construction costs. Of the increase in the cost of polyester production predicted for 1980, 15 to 20 cents a pound will be the result solely of higher expenses for physical plant.



Another fact is that polyester is about six times as energy dependent as cotton. Most of the energy to grow cotton comes directly from the sun. Originally it came from the sun, too, for polyester, but it was converted energy—stored up over the years in the form of petroleum. And today the world is running out of oil. The United States is still operating with price controls on energy. Price controls act as an artificial price depressant, encouraging consumption and discouraging production. But the day will come when, politics aside, petroleum prices will have to be allowed to seek their own level, else rationing will have to be imposed. As far as foreign supplies are concerned, OPEC is preparing to give us another jolt next month. Higher energy costs are inevitable. When they come, their impact on polyester production costs will be six times greater than on the costs of cotton production.

Having said earlier that profit, not price, is the dominant factor in fiber choice, this is not meant to indicate that cotton will regain market at the expense of synthetics solely on a price basis. However, if the consumer appeal for natural looking and feeling fabrics continues, the combination of these two factors will be bad news for the synthetic fiber producers.

While the long-range effects of these factors on cotton's future are the most important matter to pursue today, we should not ignore a closer examination of the immediate numbers.

Russell Barlowe sees increasing cotton export activity ahead. Amen. Exhibit IV illustrates the situation in detail. Demand for U.S. cotton from abroad will be strong, partly because many traditionally important exporting countries are reducing production and increasing domestic consumption. The column for 1976-77 is only a projection of what might happen, not a forecast of what will happen. The figures given show current estimates of 1976-77 production, less 1976-77 consumption. Some countries—the United States for one—will reduce already tight carryover by exporting more than the "excess" of production over use. But other countries will choose to build up carryover and not ship what is shown. Among the fundamental changes now occurring in cotton is the fact that many developing countries will reduce their raw cotton exports. The United States and possibly the Soviet Union will grow in importance as raw cotton exporters. Yet, the demand for cotton exports will grow. While it is true that Western Europe is in a disturbing market slide, other countries that don't grow cotton are picking up the slack—and then some. For instance, in 1975-76, four Asian importers—Japan, Hong Kong, Korea, and Taiwan—for the first time used as much cotton as all of Western Europe. In 1976-77, they will use considerably more.

Our final exhibit is number V. Both U.S. and world use of cotton are down for 1976-77. The reason is lack of cotton. There is no other reason. Carryover is at rock bottom. On a world basis, carryover August 1976 will just about match the record low of this century, which was set in 1924. Very few of us in this room, if any, have experienced the supply of and demand for cotton that we'll see in the coming months. More cotton will be produced next year here and abroad; but it's impossible to see how supply can catch up with demand before 1978.



EXHIBIT I

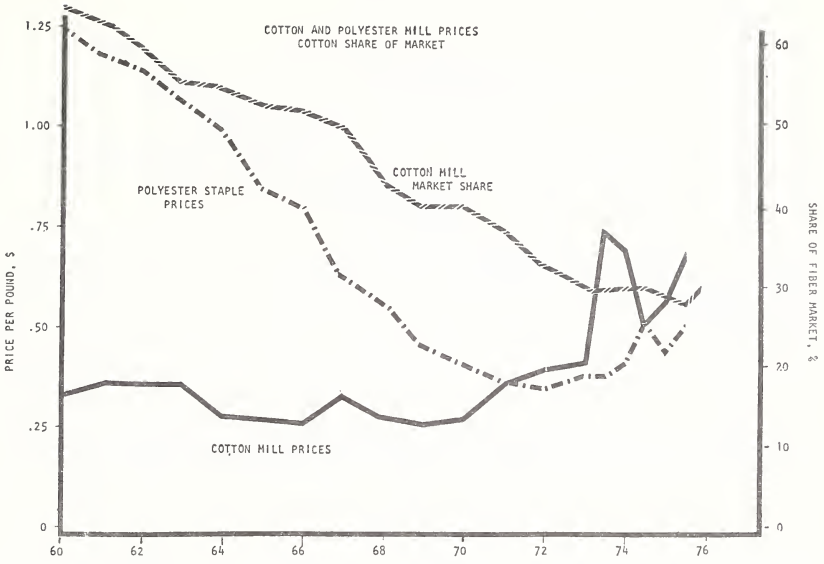
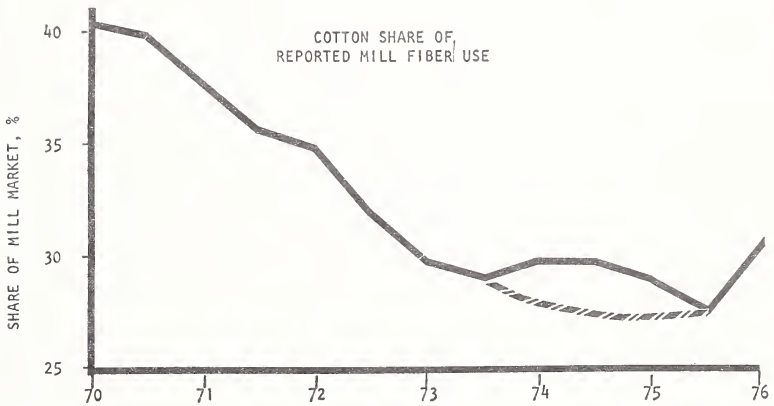
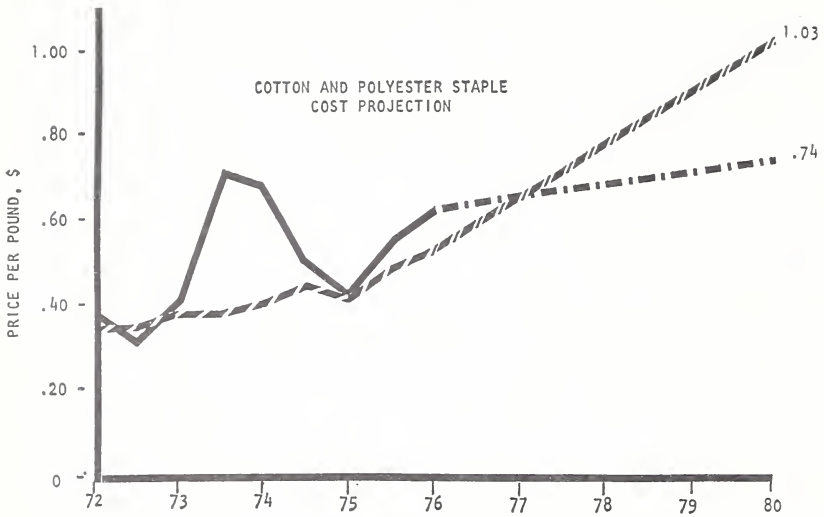


EXHIBIT II



## EXHIBIT III



## EXHIBIT IV

## EXPORTS

[In thousand bales]

	1973-74	1974-75	1975-76	1976-77 projection
Brazil.....	660	270	400	300
Egypt.....	1,200	880	850	600
Mexico.....	740	890	475	185
Pakistan.....	200	1,060	450	0
Turkey.....	1,000	580	2,155	850
U.S.S.R.....	3,300	3,550	3,700	3,200
United States.....	6,125	3,925	3,310	3,100
Other.....	6,275	6,100	7,100	
Total.....	19,500	17,260	18,440	

## EXHIBIT V

## WORLD COTTON BALANCE SHEET

	1973-74	1974-75	1975-76	1976-77 <sup>1</sup>	1977-78 <sup>1</sup>
U.S. carryover.....	4.2	3.8	5.7	3.7	2.9
Percent.....	31	39	53	34	27
Production.....	13.0	11.5	8.3	9.8	
Consumption.....	7.5	5.9	7.3	6.7	
Exports.....	6.1	3.9	3.4	4.1	
World carryover.....	23.8	25.7	31.3	23.0	19.1
Percent.....	38	43	50	37	31
Production.....	64.0	64.9	54.6	58.7	
Consumption.....	62.5	59.3	63.1	62.6	

<sup>1</sup> Cotton Inc. estimates.

## OUTLOOK FOR TOBACCO

(By Robert H. Miller, Agricultural Economist, Economic Research Service,  
USDA)

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The outlook for 1977 is highlighted by increasing tobacco supplies both in the United States and overseas. Prospects are for U.S. cigarette consumption to increase from this year's record high level but our leaf exports will do well to hold near recent high levels. So, despite the smaller U.S. crop this season, it exceeds prospective use and our carryover stocks may increase. Next year's tobacco quotas will probably hold the crop size to no more than this season's level. But cash receipts may gain because of higher support prices, as happened for the 1976 crop.

### TOBACCO PRODUCTS

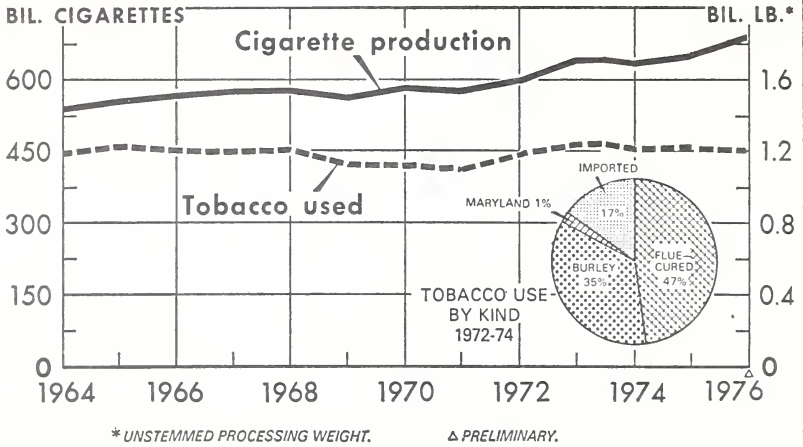
Cigarettes take four-fifths of the tobacco used in the United States and account for an even higher share of our exports. U.S. cigarette output should reach a record 700 billion cigarettes this year, 8 percent above 1975. The number of cigarettes consumed per person, 18 years and over, in 1976, is staying about the same as last year when 4,121 cigarettes (207 packs) were used. In fact, per capita use hasn't changed much in the past 3 years despite changes in income and employment levels. Next year U.S. smokers may smoke a few more in total than in 1976 as the smoking age population increases.

Retail cigarette prices are averaging 4 percent higher in 1975, due to increases in manufacturers' prices and in wholesale-retail margins. But the hike for cigarettes is less than the rise in consumer prices generally. This year none of the States raised their cigarette taxes, so the overall average has virtually stabilized. Despite a decline in the overall inflation rate, further cigarette price increases are likely. There are more people of smoking age and antismoking publicity remains at a moderate level. In the past few years about half the States and numerous cities and counties have enacted laws and ordinances that limit smoking in public places. But the effect on smoking incidence is probably marginal.

Consumption of large cigars in 1976 is totaling about 5.3 billion, 7 percent below 1975 and 30 percent below the 1964 peak. Small cigar output may fall one-fifth below the 2.9 billion total of 1975. Smoking tobacco output in 1976 is down 2 percent to an estimated 45 million pounds, a record low. The downtrend suggests younger smokers are not as attracted to cigars and pipes as in years past. Next year consumption may drop further.

Snuff output is remaining about the same. By contrast, chewing output probably reached 81½ million pounds this year, 2 percent more than 1975's level. Not much change is expected for these products next year.

## CIGARETTES: PRODUCTION AND TOBACCO USED

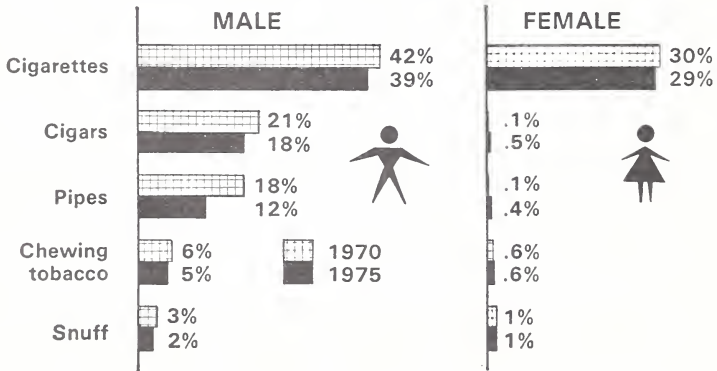


USDA

NEG. ERS 5310-76 (9)

## TOBACCO USE 1970 AND 1975

*Men and Women, 21 and Over*



DATA FROM HOUSEHOLD SURVEYS FOR PUBLIC HEALTH SERVICE.

USDA

NEG. ERS 8243-76 (9)

## FOREIGN TRADE

U.S. exports of tobacco and tobacco products in 1976 are gaining a little from last year's record high value to around \$1.4 billion. Both volume and average value are up. Value of both unmanufactured tobacco and tobacco product exports are expected to exceed last year's record highs, \$852 million and \$401 million, respectively. In recent years leaf and product exports have taken about four-tenths of the U.S. tobacco crop. This year U.S. tobacco exports will register about a \$1.1 billion surplus over tobacco imports for consumption of about \$325 million. This favorable tobacco trade balance along with the high level of sales for other agricultural products is helping offset the country's trade deficit in nonagricultural products.

Unmanufactured tobacco exports in 1976 are expected to total a little larger than the 563 million pounds (634 million, farm-sales weight) shipped in 1975. Delayed shipments from last year's sales moved early this year, boosting the 1976 total and holding down 1975 exports. The trend of rising production overseas and U.S. price rises will hold down 1977 exports. Gains in world cigarette production have slowed to around 2-3 percent annually, but the preference for light cigarettes containing Flue-cured and burley tobaccos continues. In our major market, the European Community, takings of U.S. tobacco trail 1975. Less is going to Netherlands, West Germany, and Denmark. Purchases by Japan and Italy have been on the upswing. United Kingdom purchases are held down by the declining value of sterling and high taxes on tobacco products.

World tobacco output this year is expected to total below the 11.7 billion pounds produced in 1975 as output in the United States is down. Foreign production of Flue-cured tobacco may have decreased in 1976. Decreases occurred in Brazil, India, Canada, and Rhodesia. Gains were registered in Korea and Malawi. Rhodesia was our major overseas competitor before 1965, but continued U.N. sanctions and political turmoil between Rhodesia and neighboring countries are holding down Rhodesia's production and exports.

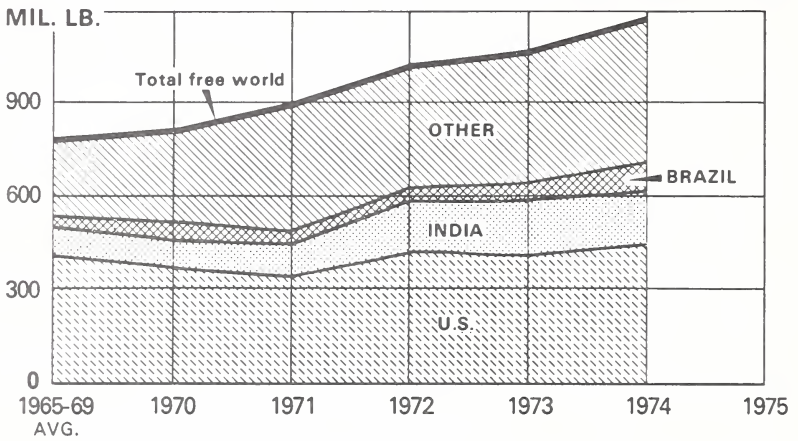
World production of burley steadied in 1976, in part due to more stable output in the United States and Italy, the largest producer outside the United States. In Korea, another leading producer, estimated output increased 17 percent.

Imports accounted for about 22 percent of U.S. manufacturers' tobacco utilization last marketing year (19 percent of use for cigarette and 70 percent for cigars). Cigarette leaf (oriental) is the principal import. Cigarette tobacco imports for consumption (factory use) this year may decline to around 230 million pounds. This quantity includes 27 million pounds of scrap and about 30 million pounds of Flue-cured and burley leaf.

Cigar tobacco imports are mainly filler tobacco, including scrap. For this year imports will probably total 75 million pounds (for consumption), about the same as a year earlier. This high level will probably continue due to large stocks of foreign tobacco in the United States, requirements for low cost, neutral tobacco for blending, and shortages of certain grades and qualities in domestic tobaccos.



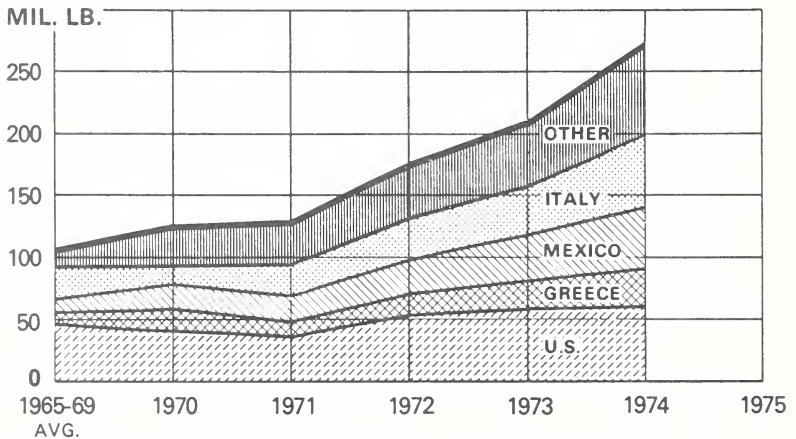
## FLUE-CURED TOBACCO: ESTIMATED FREE WORLD EXPORTS, DECLARED WEIGHT



USDA

NEG. FAS 2400-75 (10)

## BURLEY TOBACCO: ESTIMATED FREE WORLD EXPORTS, DECLARED WEIGHT

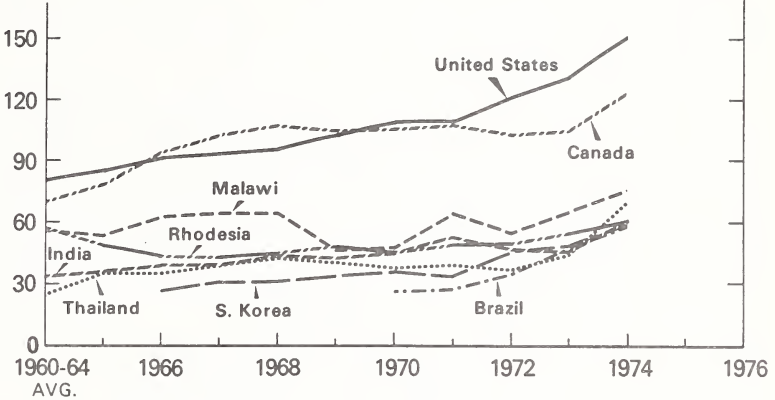


USDA

NEG. FAS 2355-75 (9)

## FLUE-CURED TOBACCO: AVERAGE ESTIMATED EXPORT PRICES, BY MAJOR PRODUCERS

U.S. ¢ PER LB.



USDA

NEG. FAS 2362-75 (10)

### LEAF TOBACCO

The most notable developments for U.S. producers in 1976 were decreased production and the resumption of the upward price trend. Despite a slowdown in utilization, and increased loan holdings, prices at Flue-cured auctions jumped. Another record high crop value is in prospect. For next year growers may produce close to this season's tobacco volume. Price support levels will rise, so growers should receive prices above the 1976 season's levels. Cash receipts may gain from this marketing year's total of about \$2.3 billion. Production costs are expected to continue upward.

All tobacco production is forecast 6 percent less this season. Adding the larger carryover, total supplies for the 1976/77 marketing year are up 2 percent. With a stronger auction demand and higher support level, Flue-cured tobacco prices averaged 11 percent above 1975's level. When burley markets open next week, prices are expected to reach a new record, surpassing the 1974 season's record of almost \$1.14 per pound.

At the beginning of the 1976/77 marketing year tobacco held under Government loan totaled 405 million pounds (farm-sales weight), about twice the year-earlier level. The large volume of loan tobacco from this season's Flue-cured crop means that by the end of this marketing year, total loan stocks on hand will rise sharply to just over 15 percent of carryout stocks.

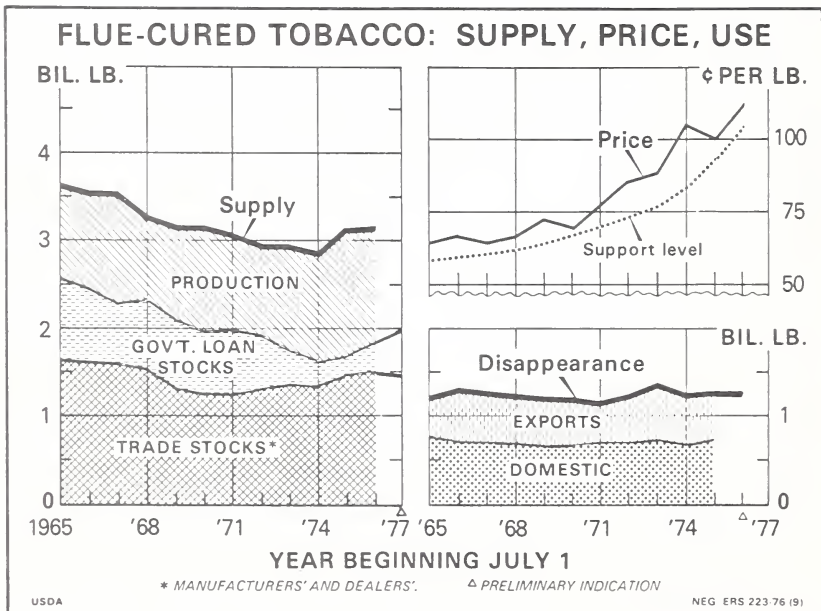
Government price support is mandatory for tobacco produced under marketing quotas. The legal formula requires that price support levels for eligible tobaccos go up about 7 percent next year over 1976. The increase results from a rise in the parity index (a measure of

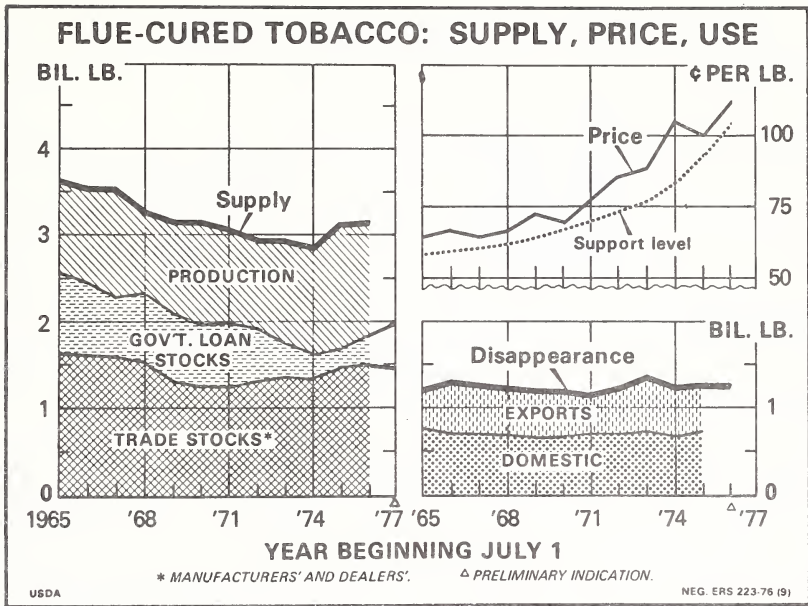
changes in prices paid by farmers, including wages paid to hired labor, interest, and taxes). The rate of increase for input costs has slackened and next season input supplies may remain plentiful.

For *Flue-cured* tobacco, a smaller crop and increased carryover means the 1976-77 supply is up 3 percent. This season USDA decreased the Flue-cured quota 15 percent to bring supplies in line with use. Growers are selling about 9 percent less than in 1975. Acreage decreased and average yield per acre fell slightly (October 1 indications).

The 1976 Flue-cured auction season has just ended with an average of \$1.11 per pound, 11 cents above the previous year. Quality was mixed; despite the larger supply, higher supports and short supply in some categories pushed prices up, especially for better leaf grades. Growers placed 20 percent of sales under Government loan, about the same percentage as 1975's 8-year high. Less desirable, lower stalk tobacco comprise a large share of loan stocks. This causes many industry officials to review the support formula with a view to putting the program on a more economically sound basis.

Last marketing year, exports of Flue-cured (over four-fifths of total U.S. tobacco exports) declined when foreign tobacco became available and cigarette manufacturers worked off stocks; the overall decrease was 5 percent. U.S. exports during July-September 1976 were down, in part due to large overseas crops and the sharp jump in the 1974 season prices. Cigarette output is gaining and domestic use may gain. Disappearance this marketing year may gain a little from the 1975-76 level, but the large crop will still raise carryover some 50 million pounds by next July.





For 1977, under the acreage-poundage program, USDA is required to announce the national Flue-cured marketing quota by December 1, 1976, and hold the triennial referendum of growers within 30 days. The 1976 quota was 1,268 million pounds, or 6 percent above last season's use. Supplies are about 2.6 years' use compared with the desired supply of 2.5 years, according to the legislative formula.

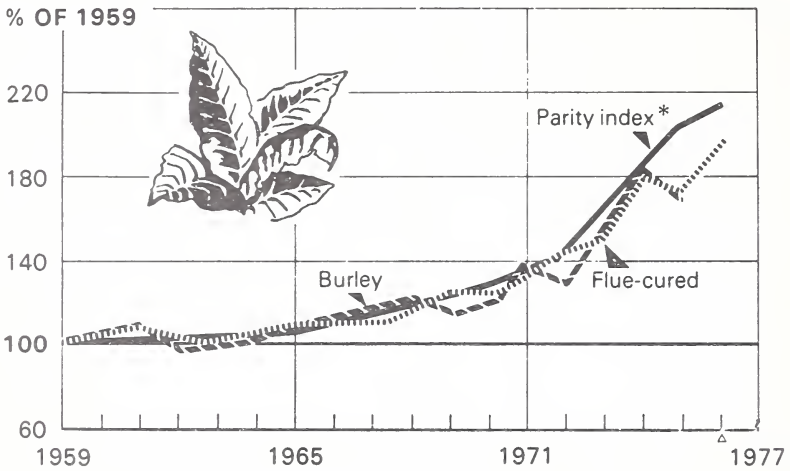
The 1976-77 supply of *burley* tobacco is 1 percent above last season. Carryover on October 1 was up slightly. This year's crop is down 2 percent as acreage and yield are both off slightly.

Burley disappearance rose in 1975-76 when exports rebounded. Domestic burley disappearance may gain with larger available supplies and further growth in cigarette output. Carryover stocks next October 1 will likely change little.

Burley poundage legislation requires that the national quota be not less than 95 percent of estimated disappearance for that year. With disappearance around the 605 million pounds of the past 3 years and a need to rebuild stocks, USDA may keep the 1977 burley marketing quota near this season's 635 million pounds. The 1977 farm quota will increase by the indicated undermarketings from this year's quotas.

For *other* tobaccos, the current marketing year's supplies of Southern Maryland are above last season. Supplies of Fire-cured and cigar tobacco are about the same, while supplies of dark air-cured types are lower.

## TOBACCO PRICES AND PARITY INDEX

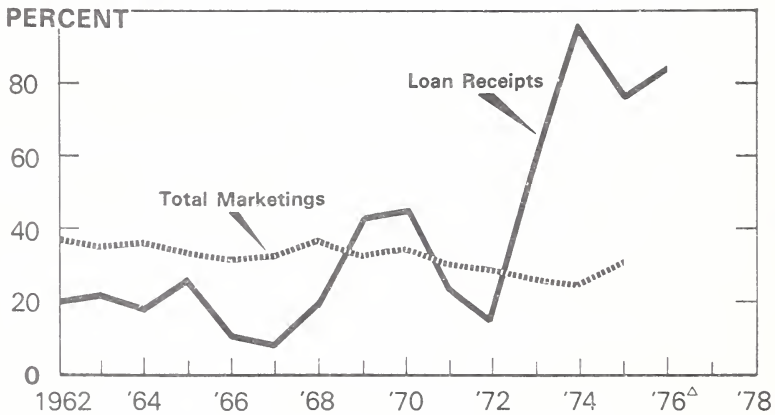


\* PRICES PAID FOR ALL ITEMS INCLUDING INTEREST, TAXES, AND WAGE RATES.  
 Δ SEPTEMBER 1 INDICATION.

USDA

NEG ERS 782 76 (9)

## X, P, & N GRADES\* AS A SHARE OF U.S. FLUE-CURED TOBACCO



\*Lugs, primings, and Nondescript.

Δ Through September 8.

USDA

Neg. ERS 2598-76 (10)



## SITUATION AND OUTLOOK FOR FEED

(By James J. Naive, Agricultural Economist, Economic Research Service, USDA)

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A 3-percent larger feed grain supply, strong export prospects, a moderate increase in prospects for grain feeding, and smaller supplies and higher prices of protein feeds and hay dominate the 1976-77 feed outlook.

### FEED GRAINS

Feed grain supplies for 1976-77 total 221 million short tons, up from 220 million last year. The production forecast of 208 million tons on November 1 is also 3 percent more than 1975's production. Carryover stocks into 1976-77 totaled 19 million tons, little different than a year earlier.

In 1975-76, incomes of hog, dairy, broiler, and egg producers were generally favorable. But cattle feeders and turkey growers had losses during much of the year. Near the end of the season, returns to hog and broiler producers were squeezed due mainly to sharp declines in prices of their products. Cattle feeders have begun to cut back placements; pork production will be larger in 1976-77 but hog producers may temper planned expansion; broiler chick placements have started to slow; while heavier feeding of corn and oats has increased milk output. On balance, domestic feeding of grains, including wheat, in 1976-77 is expected to increase more than half as much as 10-percent increase in 1975-76. Feeding of feed grains is expected to be up around 5 percent and feeding of wheat will be up substantially from 1975-76.

The U.S.S.R.'s grain crops are large this year and they will buy less than in 1975-76. However, European countries that have suffered from drought likely will buy more U.S. grain in 1976-77. Thus U.S. feed grain exports in 1976-77 are expected to be somewhat below 1975-76's record volume of 55 million tons.

Total use of feed grains in 1976-77 may be somewhat less than 1976 production, leaving carryout stocks in 1977 around 23 million short tons, compared with near the small volume of the year before.

#### *Feed demand expansion may slow*

Once the feed grain supply for a season is determined, demand becomes the major influence of the market. Presently, the combined number of livestock and poultry on feed is larger than a year earlier but may begin to taper off if the current generally poor profit margins continue well into the 1976-77 feeding season. Cattle feeding margins have been unfavorable since January 1976. Numbers of cattle on feed

on October 1 were little changed from a year earlier, indicating some slowdown in feed demand is forthcoming from the cattle sector following a sharp increase in 1975-76. Too, near the end of the 1975-76 season, profit margins of both hog and broiler producers were also squeezed as increased supplies reduced product prices. For example, hog prices early this fall are down more than a third and broiler prices are down nearly a fifth from summer peaks. Consequently, incomes of both pork and broiler producers are being trimmed.

The fall pig crop (pigs born during June-November) is up about 18 percent. These hogs go on feed rations during September-February which essentially corresponds with the first half of the October-September feeding season. Thus, feed demand from the pork sector will be strong through about next March-April. At that time the spring pig crop (pigs born in December-May) becomes a factor in feed demand. Hog farmers have reported intentions to farrow 9 percent more pigs during December-February. A 10-percent increase in broiler production is forecast for October-December, but in 1977 gains may taper off because of reduced profitability.

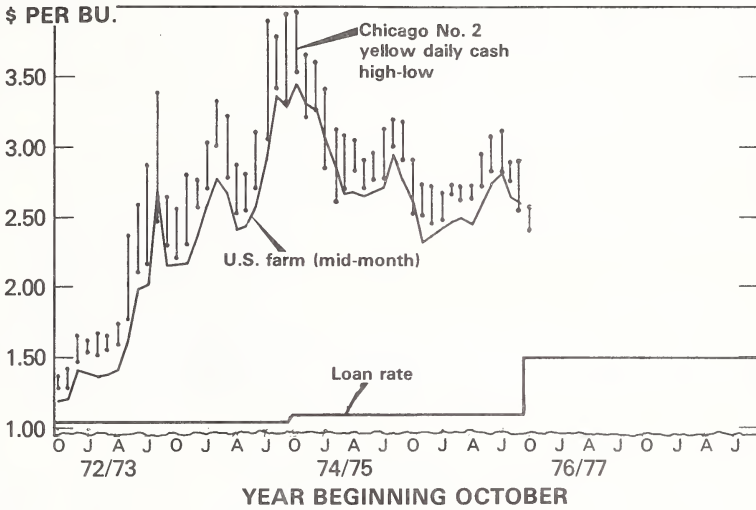
The situation described above implies a slower rise in feed demand than the 10-percent increase during 1975-76. There is, as usual, considerable uncertainty as to prices of livestock and poultry going to market in 1977. Present futures market prices for cattle and hogs in 1977 make receipts look quite marginal for most feeders to hedge a profit. However, if current prospects for further strengthening in prices of fed cattle by mid-1977 materialize, more interest in livestock feeding will be generated. But it should be remembered that it takes time to crank up and crank down livestock output because of varying biological cycles for animals.

#### *Overall price level may change little*

The index of prices received by farmers for feed grains in 1975-76 averaged 12 percent less than the record high prices received by farmers in 1974-75. Feed grain prices in 1976-77 probably will not differ materially from the average of 1975-76. Corn prices at the farm averaged \$2.55 a bushel in 1975-76. The supply is tight relative to expected usage, and there will be some upward pressure on prices during the marketing year. However, there may be some periods of price weakness if livestock and poultry feeders cut back on their operations. The pace of foreign purchases and shipments also will influence seasonal price movements. It appears that foreign buyers are following a more orderly pattern of purchases than in 1972-75 when early, extremely heavy buying was the usual case.

## CORN PRICES

\$ PER BU.

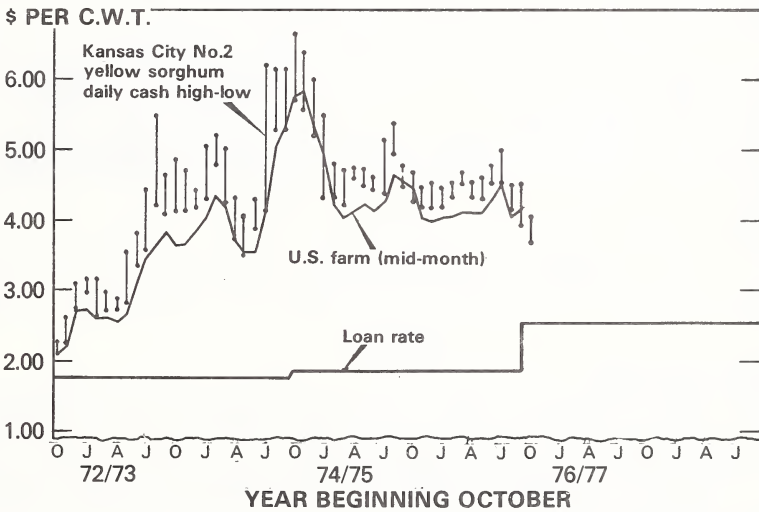


USDA

NEG. ERS 382-76 (10)

## SORGHUM PRICES

\$ PER C.W.T.



USDA

NEG. ERS 386-76 (10)

## WORLD COARSE GRAIN SITUATION AND OUTLOOK

*World 1976-77 coarse grain harvest is a record*

World coarse grain production, trade, consumption, and ending stocks for the July-June 1976-77 season are all estimated above last year. The adverse effects of the European drought have been more than offset by increased output in the U.S.S.R. and Canada and projected increases in South Africa, Brazil, and Argentina. The projected increase in production more than covers a projected 6-percent boost in consumption, resulting in some increase in 1976-77 ending stocks. World trade is expected to rise by around 1 million tons above 1975-76's 76 million ton level, as substantially more imports are scheduled this year for Western Europe.

## CORN

*Crop up slightly*

As of November 1, the corn crop was estimated at 6.1 billion bushels, below early summer prospects and 5 percent above the record 1975 crop of 5.8 billion bushels. Hot dry summer weather reduced the national yield estimate to 85.5 bushels, down 0.7 bushels from 1975.

*Domestic use may be a little larger; exports a little smaller*

There likely will be some increase in corn fed to livestock and poultry in 1976-77. More hogs on feed and heavier feeding rates by dairy-men which will more than offset expected slackening in cattle feeding and a reduction in 1977 turkey production. Higher prices of protein feed in 1976-77 also will cause corn and other grains to regain their normal energy position as well as some substitution for protein in feeding rations. Domestic feeding of corn in 1976-77 may range around 3.85 million bushels, or 7 percent above 1975-76.

Corn exports in 1976-77 are not likely to reach last year's all-time high of 1.7 billion bushels. The U.S.S.R. has a big grain crop this year and will buy substantially less from the United States than the 414 million bushels in 1975-76.

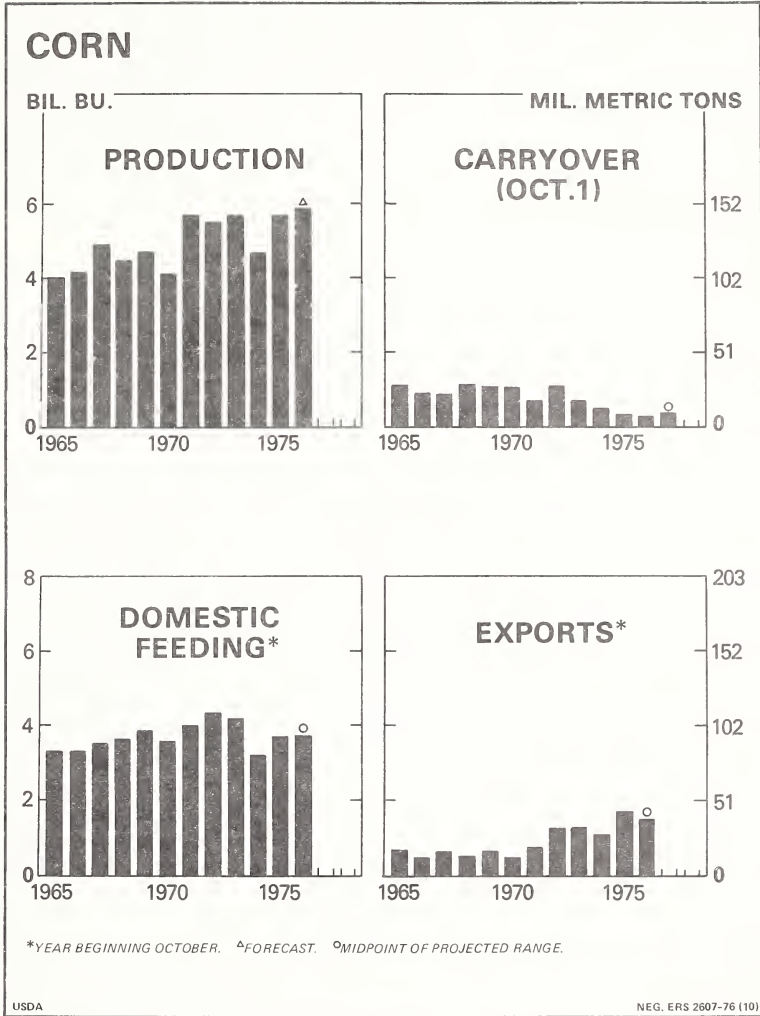
Meanwhile, some European countries suffered from prolonged drought last summer and will import more grain from the United States. U.S. corn exports in 1976-77 are projected at 1.5 to 1.7 billion bushels.

At the above forecast of disappearance, carryover stocks on October 1, 1977, would be in the neighborhood of 478-678 million bushels, compared with the low carryover of almost 400 million bushels a year earlier.

## SORGHUM

*Supply off slightly*

The 1976 sorghum crop forecast at 731 million bushels on November 1 would be down 4 percent from 1975. However, the increase in sorghum carryover stocks partially offsets the smaller crop, and the 784 million bushel supply for the 1976-77 season is off only 1 percent from a year ago.



The supply, however, appears to be ample for needs of Western feeders in light of the large supply of winter wheat plus a recordsmashing Texas corn crop of 161 million bushels. In addition, there is some easing of cattle placements in the early part of 1976-77 as cattlemen have responded to continued poor feeding margins. Consequently, domestic feeding of sorghum may not expand much in 1976-77.

Sorghum exports for 1976-77 are projected at between 185 and 215 million bushels, somewhat below the 229 million shipped overseas in 1975-76. India had a large 1976 grain crop and likely will reduce its purchases. However, sorghum prices are fairly low compared with corn, which increases the possibility of stepped up purchases by Japan. In addition, Poland, importing approximately 21 million bushels in 1975-76, has become a large buyer of U.S. sorghum.



Because of large supplies of competing grains and a slowdown in cattle placements, sorghum prices have mostly been running somewhat below their usual relationship with corn—generally termed at around 92 percent on a pound-for-pound basis. In late October, Kansas City sorghum was mostly quoted at \$3.80 and \$3.85 per hundredweight, or 87 percent of corn. Sorghum prices likely will be fairly stable through the winter. Any rise may be largely seasonal in relation to corn prices and storage costs.

#### OATS AND BARLEY

##### *Usage likely to exceed the 1976 crops*

Oat use in 1976-77 is expected to be larger than the small 564 million bushel crop, and carryover stocks will be drawn down again. Use of oats for food and seed in 1976-77 is projected at 85 million bushels, the same as in 1975-76, but use for livestock and poultry feeding may fall a bit short of last year's 575 million. Exports may not match last year's 14 million bushels. Oats fed to livestock in June-September totaled 208 million bushels, about 10 percent below a year earlier. Exports in the same period were 5 million bushels, up from 3 million a year earlier.

Because of a comparatively tight supply coupled with a strong demand, oat prices have been relatively strong compared with prices of other feed grains. During 1975-76 (October-September), farm prices of oats averaged 13 percent more than corn, after adjusting for weights and feeding values. In October, oat prices averaged \$1.46 per bushel at the farm, compared with \$1.41 a year earlier.

Barley usage during June-September totaled 136 million bushels, about the same as a year earlier. Domestic feed usage of 70 million bushels was down 19 percent. Exports of 15 million bushels were well ahead of last year's pace of 4 million. Through November 7, U.S. export commitments stood at 47 million bushels, substantially more than the 17 million of a year earlier.

Barley feeding is projected at 170 to 190 million bushels in 1976-77, compared with 190 million bushels in 1975-76. Food, seed, and beverage uses are projected at 154 million bushels, compared with 149 million in 1975-76. Exports are likely to range between 35 and 55 million bushels, up from 24 million in 1975-76, bringing total usage to a little more than the 1976 crop of 355 million.

Prices of No. 3 or better feed barley at Minneapolis since August have been sharply lower than a year earlier. The October price averaged \$2.50 per bushel, down from \$2.80 a year earlier. No. 3 or better malting barley was mostly quoted at \$3.05 to \$3.10, down 75-80 cents a bushel from October 1975.

#### HIGH PROTEIN FEEDS

High protein feeding (soybean meal basis) in 1976-77 probably will drop about 5 percent below last year's record high as a result of a reduced soybean crop and crush and stronger prices for soybean meal (SBM) relative to grain.

##### *Soybean meal feeding to decline*

Domestic soybean meal feed consumption for 1976-77 may drop about a tenth following the 23-percent surge in 1975-76. SBM prices

this year will be sharply higher because of the smaller crop and stronger prices of soybeans. SBM (44 percent Decatur) was quoted at around \$175 per ton in early November, compared with about \$120 a year earlier. If foreign demand for SBM picks up, prices should hold strong, but present prospects for exports are somewhat below the 5.2 million tons shipped in 1975-76. Domestic demand for SBM should continue strong through mid-1976-77 because of more hogs and broilers. Demand during April-September 1977 hinges on the outcome of livestock-poultry adjustments this winter.

#### HAY AND OTHER ROUGHAGE FEEDS

Hot dry weather this past summer cut hay yields. Production of all hay in the Nation this year totaled nearly 120 million tons, about 10 percent less than in 1975. Yields declined an average of 9 percent while harvested acres were off 1 percent from 1975. Contributing to this decline is the loss of cuttings in the North Central region—particularly Minnesota, Wisconsin, and the Dakotas. Missouri and Kansas also suffered declines in yields. While alfalfa production was off 12 percent from the 1975 level, all other hay production dropped 8 percent as yields per acre this year were down 6 percent and acres harvested were off 1 percent.

Good quality hay is being sold at premium prices this fall, and in hay-deficit areas, farmers are faced with increasing transportation costs. The farm price for hay in mid-October ranged from \$42 in Kentucky to \$72 in California, and nationally averaged \$60 per ton, \$10 more than a year ago.

#### *Emergency hay program "beefed up"*

A recent amendment to the Disaster Relief Act of 1974 directs USDA to pay 80 percent (not to exceed \$50 per ton) of the cost of transporting hay from areas of plentiful supplies to farmers located in areas declared eligible for Federal disaster relief and \$12.50 per ton for silage. This program amendment will be in effect until October 1, 1977. Because of its bulk use and high cost of transportation relative to its value, hay usually is not shipped over long distances. However, during the next several months, there may be more than the usual movement of hay over the Nation's highways. This stepped-up demand will tend to give added strength to hay prices.

#### EARLY OUTLOOK FOR 1977-78

As feed grain producers plan for next year's operations, their cropping patterns are apt to have some significant changes.

Because of prospects for relatively low carryover stocks, weather again will leave its mark on the outcome of supplies of corn, sorghum, oats, and barley for 1977-78. Much interest will be centered on the Western Belt, which has struggled through 3 successive dry years that have reduced subsoil moisture reserves in some areas to the lowest since the drought of the thirties. If the subsoil moisture supplies aren't at least partially recharged by planting time, crops will be heavily dependent upon spring and summer rainfall.

## INCREASED LOAN RATES ANNOUNCED ON OCT. 13

[Dollars per bushel]

Crop	Former 1976 loan rate	Announced loan rates for 1976 and 1977
Corn.....	1.25	1.50
Sorghum.....	1.19	1.43
Barley.....	1.02	1.22
Oats.....	.60	.72
Wheat.....	1.50	2.25
Rye.....	1.00	1.20
Soybeans.....	2.50	2.50

Growers also will be weighing the recently announced Government program provisions for 1977 crops:

Target prices that might possibly be around a tenth higher than those set for 1976.

Nonconserving crops (except those under marketing quotas) or any conserving crop used for hay or for grazing can be substituted to preserve allotments.

The prospects for relatively strong soybean and cotton markets may influence fewer plantings of feed grains. The most notable shift could be soybeans coming back on corn land. It has been 3 years since soybean acreage peaked at almost 57 million acres. At that time corn plantings totaled 72 million acres. Relative corn/soybean prices (lagged) appear to strongly influence year-to-year shifts in corn/bean acreages. Other factors such as weather, input costs, and crop practices will be considered by growers.

Sorghum will also be facing stronger price competition from cotton which could result in a modest drop off in sorghum acreage from the 18 million acres planted in 1976.

On balance, early indications of price relationships suggest that combined plantings of the four feed grains may be down around 4 million acres from the 129 million seeded in 1976. Corn would account for most of the reduction.

## PLANTED ACREAGE

[Million acres]

Crop	1972	1973	1974	1975	Indicated 1976 <sup>1</sup>
Corn.....	67.0	71.9	77.8	77.9	84.1
Sorghum.....	17.3	19.2	17.7	18.3	18.4
Oats.....	20.2	19.1	18.0	17.4	17.6
Barley.....	10.6	11.2	9.0	9.5	9.2
Total.....	115.1	121.4	122.5	123.1	129.3
Wheat:					
Winter.....	42.2	43.2	52.4	56.2	57.7
Durum.....	2.6	3.0	4.2	4.8	4.7
Other spring.....	10.1	12.8	14.8	14.1	17.8
Total.....	54.9	59.0	71.4	75.1	80.2
Soybeans.....	46.9	56.7	53.5	54.6	50.3
Upland cotton.....	13.9	12.4	13.6	9.4	11.7
Hay <sup>2</sup> .....	59.8	62.1	60.6	61.9	61.2
Total, grand.....	290.6	311.6	321.6	324.1	331.4

<sup>1</sup> Aug. 1.<sup>2</sup> Harvested acreage.

TABLE 1.—FEED GRAINS: MARKETING YEAR SUPPLY, DISAPPEARANCE, ACREAGE AND PRICES, 1971-76:  
[Adjusted for marketing years changed by July 1 to June 1 shifts in grain stocks reporting]

Year <sup>2</sup>	Million short tons											
	Supply			Disappearance			Ending stocks					
	Beginning stocks	Production	Imports	Domestic use			Total	Exports	Total disappearance	Privately held <sup>3</sup>	Government <sup>4</sup>	
				Total	Feed	Food, industry, and seed						
1971/72	34.7	207.7	0.4	242.8	149.6	16.1	165.7	27.1	192.3	(3)	(3)	50.0
1972/73	50.0	199.9	.5	250.4	156.4	17.0	173.4	43.1	216.5	(3)	(3)	33.9
1973/74	33.9	205.0	.2	239.1	153.3	17.6	170.9	44.5	215.4	(3)	(3)	23.7
1974/75	23.7	165.3	.5	189.5	115.6	17.7	133.3	39.4	172.7	(3)	(3)	16.8
1975/76	16.8	202.4	.5	219.4	127.8	18.1	145.5	55.1	200.6	(3)	(3)	19.1
1976/77 <sup>6</sup>	19.1	207.8	.4	227.3	134.2	18.8	153.0	51.6	204.6	(3)	(3)	22.7
					(+, -5)		(+, -5)	(+, -4)	(+, -6)			(+, -4)
Acreage (millions)												
Seasonal index, price received by farmers <sup>7</sup> (1967=100)												
Government price support operations, total payments to program participants (millions)												
Base or allotment			Set-aside		Planted		Harvested for grain		Yield per harvested acre (short tons)			
132.9			18.2		128.0		106.3		1.95		96	
1971/72	129.8		36.6		115.1		94.0		2.13		142	
1972/73	130.0		9.4		121.4		102.4		2.00		225	
1973/74	89.0		---		122.5		100.6		1.64		251	
1974/75	89.0		---		123.1		104.8		1.93		220	
1975/76 <sup>6</sup>	89.0		---		129.3		106.8		1.89		201	
1976/77 <sup>6</sup>	89.0		---		129.3		106.8		1.89		201	

<sup>1</sup> Aggregated data on corn, sorghum, oats, and barley.

<sup>2</sup> The marketing year for corn and sorghum begins Oct. 1; June 1 for oats and barley.

<sup>3</sup> Not available.

<sup>4</sup> Under loan to or owned by CCC; not available.

<sup>5</sup> Preliminary.

<sup>6</sup> Estimate.

<sup>7</sup> Excludes support payment.

<sup>8</sup> October, 1976.

<sup>9</sup> Disaster payments.

TABLE 2.—CORN: MARKETING YEAR SUPPLY, DISAPPEARANCE, ACREAGE AND PRICES, 1971-76  
[Adjusted for July 1, to June 1 shift in grain stocks reporting]

Year beginning Oct. 1	Million bushels											
	Supply			Disappearance			Ending stocks Sept. 30					
	Beginning stocks	Domestic use			Total	Exports	Total disappearance	Privately held	Government <sup>1</sup>	Total		
		Production	Imports	Feed								
											Food, industry and seed	
1971/72	667	5,641	1	6,309	3,997	390	4,387	796	5,183	408	718	1,126
1972/73	1,126	5,573	1	6,700	4,304	429	4,733	1,258	5,991	537	172	709
1973/74	709	5,647	1	6,357	4,183	448	4,631	1,243	5,874	475	8	483
1974/75	483	4,664	2	5,149	3,191	450	3,641	1,149	4,790	359	0	359
1975/76 <sup>2</sup>	359	5,767	2	6,128	3,553	465	4,018	1,711	5,729	399	0	399
1976/77 <sup>3</sup>	399	6,063	1	6,463	3,800	485	4,285	1,600	5,885	578	0	578
					(+, -150)		(+, -150)	(+, -100)	(+, -100)			(+, -100)
Seasonal prices (per bushel)												
Government price support operations												
National average loan rate (per bushel)												
Support payments to participants (millions)												
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TABLE 3.—SORGHUM: MARKETING YEAR SUPPLY, DISAPPEARANCE, ACREAGE AND PRICES, 1971-76  
[Adjusted for July 1 to June 1 shift in grain stocks reporting]

Year beginning Oct. 1	Million bushels											
	Supply						Disappearance					
	Domestic use						Government price support operations					
	Food, industry and seed						National average loan rate					
	Beginning stocks	Production	Imports	Total	Feed	Food, industry and seed	Total	Exports	Total disappearance	Privately held	Government	Total
1971/72	90	876	---	966	692	9	701	123	824	50	92	142
1972/73	142	809	---	951	660	6	666	212	878	60	13	73
1973/74	73	930	---	1,003	701	7	708	234	942	59	2	61
1974/75	61	929	---	990	437	6	443	212	655	35	0	35
1975/76 <sup>2</sup>	35	758	---	793	505	6	511	229	740	53	0	53
1976/77 <sup>3</sup>	53	731	---	784	522	6	528	200	728	56	0	56
					(+, -15)		(+, -15)	(+, -15)	(+, -15)			(+, -15)
	Government price support operations											
	Average (millions)						Seasonal prices (per hundredweight)					
Base or allotment	Set-aside	Planted	Harvested for grain	Yield, per acre harvested (bushels)	Received by farmers <sup>4</sup>	Kansas City, No. 2 yellow	Fort Worth, No. 2 yellow	Gulf ports, No. 2 yellow	Support payment (per hundred-weight) <sup>5</sup>	Total payments to participants (millions)		
1971/72	24.6	4.1	20.8	16.3	53.7	\$1.87	\$2.05	\$2.51	\$1.73	\$0.31	\$167	
1972/73	23.7	7.3	17.3	13.4	60.5	2.45	3.24	3.75	1.79	0	289	
1973/74	23.9	2.0	19.2	15.9	58.7	3.82	4.64	5.13	1.79	0	183	
1974/75	(6)	0	17.7	13.9	45.3	4.96	5.01	5.62	1.88	0	7 68	
1975/76 <sup>2</sup>	(6)	0	18.3	15.5	49.0	4.21	4.46	(6)	1.88	0	7 20	
1976/77 <sup>3</sup>	(6)	0	18.4	14.8	49.2	3.68	3.88	4.50	2.55	0	7 20	

<sup>1</sup> Under loan to or owned by CCC; includes CCC's uncommitted inventory in 1971 and 1972; total inventory in 1973 to date.

<sup>2</sup> Preliminary.

<sup>3</sup> Estimate.

<sup>4</sup> Excludes support payment.

<sup>5</sup> Average earned on total sorghum produced.

<sup>6</sup> Available for total feed grains only.

<sup>7</sup> Disaster payments.

<sup>8</sup> Discontinued August 1976.

<sup>9</sup> October 1976.



TABLE 5.—BARLEY: MARKETING YEAR SUPPLY, DISAPPEARANCE, ACREAGE AND PRICES, 1971-76  
(Adjusted to new June to May marketing year)

Year beginning June 1	Million bushels									
	Supply					Disappearance				
	Beginning stocks	Production	Imports	Total	Feed	Domestic use		Total disappearance	Privately held <sup>1</sup>	Government <sup>2</sup>
						Food, industry and seed	Exports			
1971/72	184	464	12	660	270	141	411	452	(1)	(1)
1972/73	208	423	17	648	243	143	386	456	(1)	(1)
1973/74	192	422	9	623	239	145	384	477	(1)	(1)
1974/75	146	304	20	470	187	149	336	42	(1)	(1)
1975/76 <sup>3</sup>	92	383	16	491	180	149	339	24	(1)	(1)
1976/77 <sup>4</sup>	128	355	15	498	180 (+, -10)	154	334 (+, -10)	379 (+, -10)	(1)	(1)
Total										
Government price support operations										
	Seasonal prices (per bushel)					Government price support operations				
	Yield, per acre harvested					Support payments to participants (millions)				
	Acreage (millions)					National average loan rate (per bushel)				
Base or allotment	Setaside	Planted	Harvested for grain	Yield, per acre harvested (bushels)	Received by farmers <sup>5</sup>	Minneapolis, No. 3 or better		Fresno, No. 2 Western, feed	National average loan rate (per bushel)	Support payment (per bushel)
						Feed	Malting <sup>6</sup>			
1971/72	18.0	0	11.1	10.2	\$0.99	\$1.04	\$1.13	\$1.49	\$0.86	0
1972/73	18.0	4.9	10.6	9.7	1.21	1.17	1.39	1.68	.86	0
1973/74	17.3	1.4	11.2	10.5	2.13	2.03	2.63	2.69	.86	0
1974/75	( <sup>7</sup> )	0	9.0	8.2	2.80	2.58	4.03	3.16	.90	0
1975/76 <sup>3</sup>	( <sup>8</sup> )	0	9.5	8.7	2.42	2.38	3.34	2.80	.90	0
1976/77 <sup>4</sup>	( <sup>9</sup> )	0	9.2	8.3	10 2.40	10 2.52	10 3.22	10 2.67	1.22	0

<sup>1</sup> Not available.

<sup>2</sup> Under loan to or owned by CCC, not available.

<sup>3</sup> Preliminary.

<sup>4</sup> Estimate.

<sup>5</sup> Excludes support payment.

<sup>6</sup> 60 to 70 percent plump or better.

<sup>7</sup> Average earned on total barley produced.

<sup>8</sup> Available for total feed grains only.

<sup>9</sup> Disaster payments.

<sup>10</sup> June to October 1976 average.

## OUTLOOK FOR OILSEEDS, FATS AND OILS

(By George W. Kromer, Agricultural Economist, Economic Research Service, USDA)

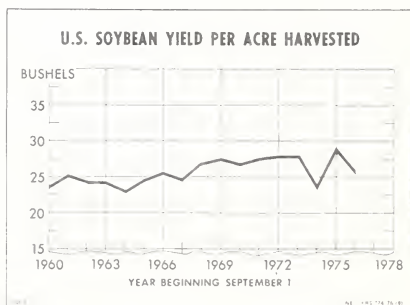
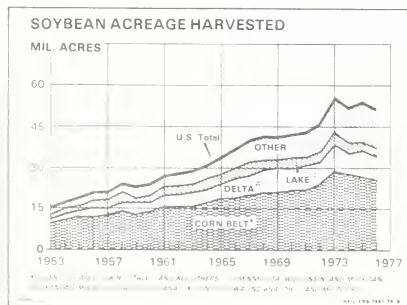
The U.S. soybean outlook is for sharply reduced supplies, continuing strong demand, low carryover stocks next September 1, and high prices.

Soybean production in 1977 will need to increase substantially to avoid continued tight supplies through the 1977/78 marketing year. If the soybean/corn price ratio holds at  $2\frac{1}{2}$  to 1 into spring, farmers likely will expand soybean acreage in 1977, possibly a tenth above this year's 50 million acres.

The U.S. oilseed harvested acreages this year were about 63 million, down 2.7 million from 1975. A sharp drop of 4.2 million acres (8 percent) in soybeans and 0.6 million in flaxseed (40 percent) more than offset the 2.1-million-acre gain (24 percent) in cotton. Peanut acreage remained unchanged from last year's level of 1.5 million. Total oilseed production (soybean, cottonseed, peanuts, and flaxseed combined) is forecast at 39 million metric tons, 15 percent less than in 1975 due to reduced yields.

### SOYBEAN SUPPLIES DOWN SHARPLY

The combination of reduced acreage and lower yields is resulting in lower soybean production in 1976. The crop, estimated at 1.252 million bushels as of November 1, was a fifth below last year. Even when adding in carryover stocks of 244 million bushels, the total soybean supply for 1976-77 is 1.5 billion bushels (41 million metric tons), compared with the record 1.7 billion (47 million tons) last year.



Despite the smaller supplies and high prices, soybean demand is expected to remain strong. Total disappearance probably will drop

to around 1.4 billion bushels, some 5 percent below last season but about 160 million bushels in excess of 1976 production. Both crushings and exports are expected to decline from the record highs of last season. Carryover stocks next September 1 likely will be drawn down to low working levels—now estimated at around 85 million bushels (2.3 million metric tons) or less than 1 month's total requirement.

#### HARVEST PRICES HIGH

Soybean prices to producers are relatively favorable this fall, averaging about \$6.30 per bushel during September-October or \$1.15 above a year ago. Prices received by farmers for all of 1976-77 are estimated to average somewhat above this early season level and sharply higher than the \$5 received during 1975-76. The crop harvest is nearly complete and farmers are storing large quantities of beans in anticipation of higher prices later. Since the current high rate of soybean crush and exports cannot be sustained throughout the marketing year, prices likely will rise in order to ration available supplies.

A sharp expansion in Brazilian soybean plantings this November-December and an expected sizable gain in U.S. 1977 soybean acreage would tend to moderate the price strength for soybeans in the second half of 1976-77.

The national average CCC price support loan rate for the 1976 and 1977 soybean crops is \$2.50 per bushel. There was no loan program for 1975 crop soybeans and the 1974 soybean loan level was \$2.25 per bushel. As in recent years, no USDA acquisitions are expected this season because of the strong market price.

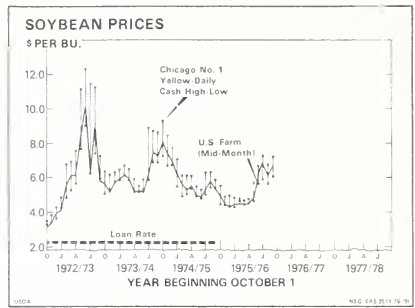
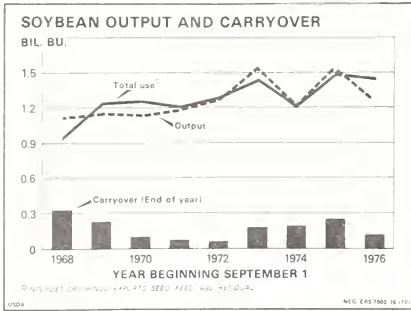
#### CRUSH TO DECLINE SHARPLY BELOW CAPACITY

Soybean crushings this season are expected to total around 790 million bushels, about 9 percent below the record 865 million crushed in 1975-76. This drop reflects the prospective decline in domestic requirements for soybean meal and oil from last year's record highs due to higher prices, and increased availabilities of competitive fats, oils, and protein feeds. Crushings during September-October 1976 totaled an estimated 143 million bushels compared with 128 million last year.

A season's crush of 790 million bushels would utilize only about two-thirds of the industry's 1976-77 processing capacity—now estimated at 1.2 billion bushels, or 100 million per month, nearly a tenth greater than 1975-76. Last season the industry operated at approximately 80 percent of capacity or close to the long-term average utilization rate.

With increased capacity, higher soybean prices, and fewer beans to crush, the outlook is for a continuation of relatively small processing margins. Spot processing margins averaged 16 cents a bushel last season and 15 cents in 1974-75. The record high margin of 72 cents was achieved in the 1973-74 crush year.



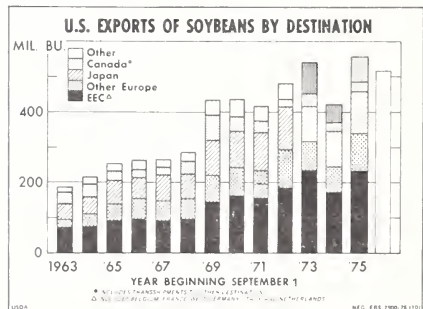
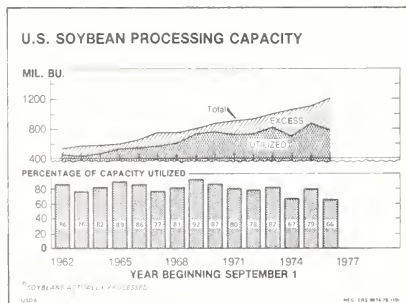


### EXPORTS ALSO TO DROP

Soybean exports are estimated around 540 million bushels compared with the record high of 555 million shipped during 1975-76. As with domestic use, exports will be largely limited by the tight supply situation. However, high soybean prices, anticipated larger Brazilian supplies of soybeans, and less favorable livestock/feed price ratios probably will reduce U.S. exports by curtailing the demand for soybean meal.

With about 55 million bushels of 1976 crop soybeans already contracted by the USSR, and the guarantee to Japan of at least 110 million bushels (3 million metric tons) this season, fewer U.S. soybeans are available for other markets. During 1975-76 the United States exported about 12 million bushels to the Soviet Union and 118 million to Japan.

As of mid-October, reported outstanding export sales of soybeans totaled 189 million bushels. Nearly 30 million bushels were booked for the USSR versus none a year ago. Japan and Western Europe accounted for most of the remainder. Soybeans inspected for export from September 1, 1976, through November 5 totaled 86 million bushels, 15 million less than a year ago.



### MORE BRAZILIAN SOYBEANS AND PALM OIL AVAILABLE IN 1977

Brazil, continuing its rapid rise as a major soybean producer-exporter, likely will take up the slack in U.S. exports of soybeans in 1976-77. Their 1977 soybean crop, four-fifths of which will be avail-

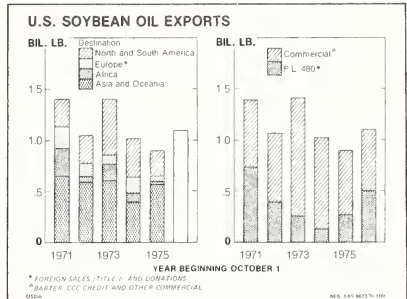
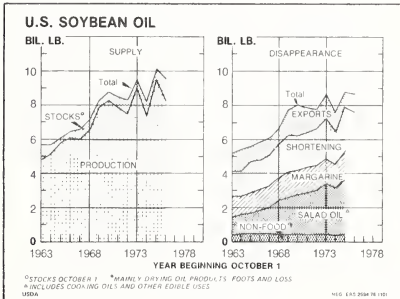
able for export, is projected at 13¼ million metric tons—2 million above this year's record 11.3-million-ton harvest.

World palm oil production in calendar 1977 is forecast to increase 13 percent to 3.6 million tons. Since 1967, world shipments of palm oil have had uninterrupted expansion. Exports in 1967 were 0.5 million tons; in 1976 they will probably total around 2 million tons, and they are forecast to hit 2.3 million next year. The continuing expansion of Malaysia's palm area has resulted in heavy competition from palm oil in traditional U.S. vegetable oil markets.

Malaysia, already exporting over 90 percent of her output, is the world's largest producer-exporter of palm oil and is expected to account for much of the future expansion. In 1976, Malaysia (including Sabah) is expected to account for 45 percent of the world's palm oil production and 70 percent of the world's exports.

Other major developments have a bearing on the U.S. export outlook for soybeans and products include:

- A 200,000-ton drop (to around 2.9 million tons) in 1977 world coconut oil output from this year's record volume, due to less favorable rainfall in the Philippines.
- A 1976 Soviet sunflowerseed crop of around 5½ to 6 million tons compared with last year's reduced harvest of 5 million.
- A 1976 Canadian rapeseed output of only 0.9 million tons, compared with 1.7 million in 1975, as a result of acreage diversion to wheat.



#### U.S. SOYBEAN OIL OUTPUT TO DECLINE

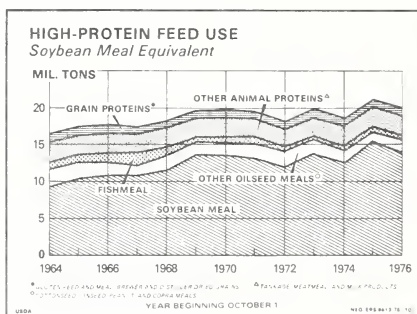
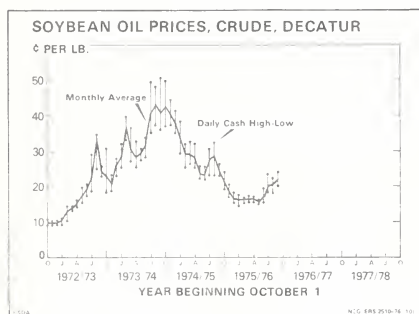
Due to tight soybean supplies and smaller crushings, soybean oil production in 1976-77 may total around 8.4 billion pounds, some 13 percent or nearly 1.3 billion pounds below last year's record high. However, carryover stocks on October 1 were a record high 1.3 billion pounds, up 0.7 billion from a year ago. Therefore, total soybean oil supplies are estimated at 9.6 billion pounds, about 0.6 billion pounds or 6 percent below 1975-76.

Domestic disappearance of soybean oil is expected to drop from its record 7.9 billion pounds of last year to around 7½ billion—in contrast to last year when use increased 1.4 billion pounds from the year before. Most of the gain in soybean oil use was in shortening manufacture (up over 28 percent), margarine (up over 13 percent), and cooking and salad oils (up over 8 percent). During 1976-77, more

cottonseed oil, peanut oil, and lard will be available, but this probably will be partly offset by smaller imports of palm and coconut oils. The U.S. total per capita use of edible fats and oils, which was a record 56 pounds in 1975-76, may decline slightly in the 1976/77 marketing year.

Soybean oil exports may approach 1.2 billion pounds, up from 1 billion in 1975-76. The gain mainly reflects increases in P.L. 480 programing, both titles I and II. Major recipients of soybean oil under title I include Pakistan and Bangladesh. Public Law 480 shipments in 1976-77 are likely to account for nearly one-half of total soybean oil exports. U.S. commercial exports will face stiff competition from increased world supplies of Malaysian palm oil and Brazilian soybean oil.

Soybean oil prices (crude, Decatur) during the 1975/76 marketing year varied between 22 cents per pound (monthly average) and 16 cents, averaging 18 cents. With reduced soybean oil supplies in 1976-77, prices are expected to average somewhat above the year-earlier level. Nevertheless, greater availabilities of other domestic fats and oils will tend to hold soybean oil prices in check. Soybean oil prices in early November 1976 averaged 23 cents per pound, about 3 cents above a year earlier.



#### SOYBEAN MEAL USE TO DROP SHARPLY

Soybean meal supplies total an estimated 19 million short tons, about 2 million tons or a tenth below 1975-76.

Domestic disappearance will drop sharply from last season's record 15.6 million tons, possibly to under 14 million. Soybean meal demand in 1975-76 was phenomenal, up nearly a fourth from 1974-75. Major factors boosting the demand last season were expanding hog and poultry production, favorable prices compared to other feed concentrates, reduced supplies of cottonseed meal, plus some buildup in pipeline stocks. The sharp cutback in prospective soybean meal use in 1976-77 reflects the slowdown in hog and poultry expansion and a return to more normal protein-grain price relationships. Also, prices of urea mixes for ruminant feeding hold a substantial competitive edge over soybean meal.

In 1975-76 the soybean meal/corn price ratio averaged 1.5 and soybean meal use was 15 percent that of corn use. A more normal relationship was that which existed in the 1960's, when a price ratio of 1.7 showed soybean meal usage about 11 to 12 percent that of corn

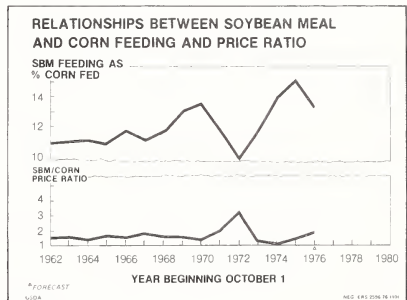
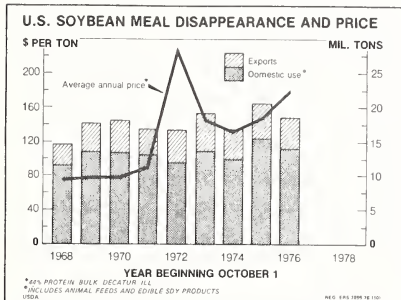
use. With the 1976-77 soybean meal/corn price ratio projected at about 2 to 1, soybean meal use will drop in relation to corn. Furthermore, more wheat is available for feeding.

Soybean meal exports are estimated at about 4.8 million tons compared with 5.2 million tons shipped in 1975-76. Higher prices along with increased competition from Brazil and other oilmeal exporters will tend to limit our exports. As in past years, Western Europe is expected to take around two-thirds of total U.S. exports.

Reduced supplies of soybeans and meal in 1976-77 are expected to result in meal prices averaging sharply above the \$147 per ton last season. Soybean meal prices (44 percent protein, Decatur) during 1975-76 fluctuated sharply, the monthly average varying between \$120 and \$194 per ton. The relatively high soybean meal/corn price relationship will temper meal use. Soybean meal prices in early November 1976 averaged \$175 per ton compared with \$115 a year ago.

#### PALM OIL IMPORTS MAY DECLINE IN 1976-77

U.S. imports of duty-free palm oil during the marketing year which started October 1 are forecast at around 800 million pounds (363,000 metric tons), some 14 percent less than the record 933 million pounds (423,000 tons) brought in during 1975-76. This forecast assumes a more normal price discount of palm oil to soybean oil of some 2 to 3 cents per pound. In early November, crude soybean oil at Decatur was 23 cents per pound compared with palm oil prices at U.S. ports of 20 cents.

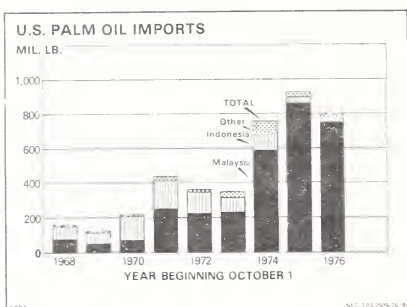
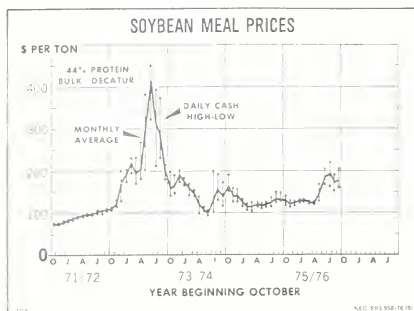


U.S. imports of palm oil in October-December will be sharply below the 356 million pounds brought in during the same quarter of 1975. A year ago imports were record large because of the sharp price discount for palm oil in the summer of 1975—8 cents per pound under soybean oil. But, the 2- to 3-month shipping time from Malaysia to the West and East Coasts of the United States, plus more lead time to execute transactions, means 4 to 5 months between placing an order and the actual arrival in the United States. Over 90 percent of U.S. palm oil imports are from Malaysia, with the remainder from Indonesia, Singapore, and Nigeria.

Domestic use of palm oil during the 1975/76 marketing year totaled 885 million pounds, 28 percent more than the previous year. Re-exports were also up sharply, reaching 37 million during the year. Use of Palm



oil in shortening manufacture, the major outlet for this commodity, totaled 600 million pounds or roughly two-thirds of the U.S. usage. Significant gains in palm oil use were also registered for cooking oils and margarine.



U.S. stocks of palm oil on October 1, 1976, were 138 million pounds, up a tenth from a year ago. While some stock declines may occur during the 1976/77 marketing year, supplies nevertheless will remain relatively large in relation to domestic needs.

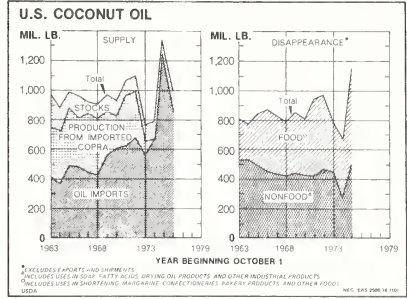
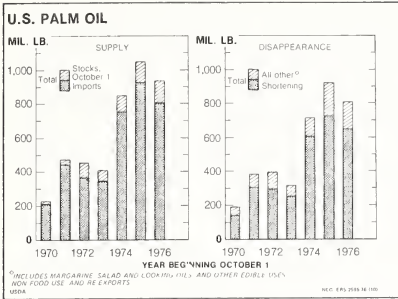
#### COCONUT OIL IMPORTS TO BE CUT DURING 1976-1977

U.S. imports of coconut oil in the 1976/77 marketing year are expected to drop sharply from the record high 1.25 billion pounds (566,000 metric tons) last season, possibly to around 0.9 billion (385,000 tons). This outlook reflects reduced domestic demand which is associated with higher-than-year-earlier prices. Total supplies this marketing year will not be off as sharply as imports, since October 1 stocks were up a fifth from a year earlier. There is no commercial production of coconut oil in the United States.

Because of less favorable rainfall in the Philippines and despite continued increase in bearing-tree numbers, world coconut oil production in calendar 1977 is projected at around 2.9 million metric tons compared with this year's 3.1-million-ton record high. There is approximately a 10-month lag between rainfall and its impact on the level of coconut oil production. The Philippines account for about one-half of total world coconut oil production and over 90 percent of U.S. coconut oil comes from the Philippines. The remainder is shipped in from Indonesia, Sri Lanka, Malaysia, Macao, the Netherlands, and Japan.

During 1975/76 heavy U.S. imports and use were encouraged by relatively low prices and record world output. Coconut oil prices were steady at the 16- to 17-cent level until the summer of 1976, when they advanced to 22 cents. For the entire marketing year, they averaged 18 cents a pound (crude, tanks, Pacific Coast) compared with 25 cents in 1974/75. Coconut oil prices in early November were 24 cents, 8 cents above a year ago. They are expected to continue above year-earlier levels throughout 1976/77.





Domestic disappearance of coconut oil in 1976-77 likely will drop sharply from the record 1.2 billion pounds of last year. Use in 1975-76 was up mainly in food products, with smaller increases for soap and other nonfood products.

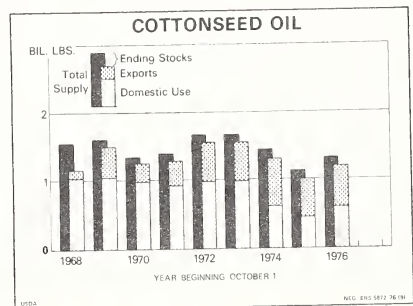
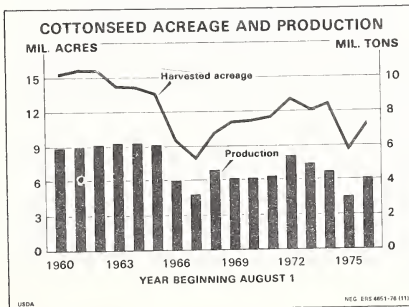
#### MORE COTTONSEED AVAILABLE IN 1976-77

The 1976 cottonseed crop is estimated at 3.8 million short tons, about 0.8 million tons above last year. Cotton acreage for harvest this year at 10.9 million is up a fourth. However, carryover cottonseed stocks on August 1 were down sharply from a year ago, resulting in a total supply of 4.0 million tons or a tenth more than in 1975-76.

Prices received by farmers for cottonseed may average somewhat above the \$98 a ton of 1975-76. Prices in October, at \$104, were the same as in 1975. Although supplies are up sharply, strong demand for cottonseed products and higher prices this season for soybean oil and meal should tend to keep cottonseed prices relatively high.

Based on cottonseed crushings of 3.5 million tons, cottonseed oil output is estimated at 1.1 billion pounds and cottonseed meal output at 1.6 million tons.

Cottonseed oil supplies for the year starting August 1 total 1.3 billion pounds, 13 percent more than in 1975-76. With increased supplies, domestic use is expected to recover from last season's record low of 440 million pounds, possibly approaching 600 million. This year, cottonseed oil prices are expected to be more competitive with other fats and oils. While less soybean oil, palm oil, and coconut oil are available, lard will be in greater supply. The tight supply situation last season pushed cottonseed oil prices considerably above these competitive commodities.



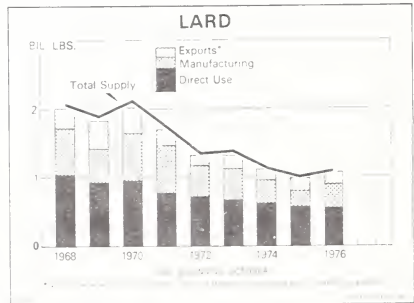
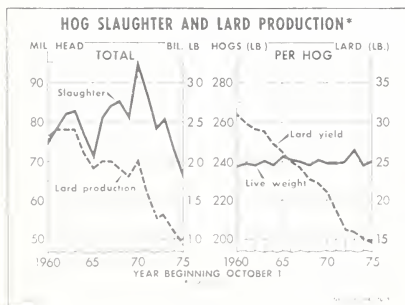
Exports of cottonseed oil are estimated at 0.6 billion pounds, up from the 0.5 billion shipped in 1975-76. As with domestic use, larger supplies and more stable prices should help encourage exports. Annual cottonseed oil exports vary widely, depending largely upon U.S. availabilities and world supplies. Egypt is the largest single market, last year taking 325 million pounds or about three-fifths of the total U.S. exports. Venezuela was our second largest market, taking 71 million pounds, followed by Western Europe with 53 million.

Cottonseed oil prices (crude, Valley) averaged 25 cents a pound during 1975-76, down from the 34 cents of the year before, and prices this season are expected to trade in a narrower range than last year. Also, the price premium of cottonseed oil over soybean oil may be narrower than the 6-cent average in 1975-76—possibly a more normal 2-cent differential. In early November, soybean oil was selling at 23 cents a pound and cottonseed oil at 24 cents; whereas, a year earlier, the price spread was about 4 cents. A key pricemaking force in 1976-77 will be export demand since we now export about one-half of our cottonseed oil production.

Cottonseed meal supplies for the August 1976-July 1977 season likely will total about 1.6 million short tons, 250,000 more than last year. Its domestic use is estimated at 1.5 million tons, up from last season's 1.3 million, and, as usual, a small quantity will be exported. Cottonseed meal prices (41 percent protein, Memphis) in early November at \$166 per ton were \$46 above a year ago. Prices probably will continue strong, reflecting continued good demand and smaller supplies of soybean and linseed meals.

#### LARD OUTPUT INCREASING

Lard production in the 1976/77 marketing year which began October 1 is projected to rise about a tenth to 1.1 billion pounds. Monthly output has exceeded year-earlier levels since June 1976 and is expected to continue higher throughout the current marketing year, reflecting increased hog slaughter.



Hog numbers are on the increase. The June-August 1976 pig crop was up 21 percent. And producers plan to have 16 percent more sows farrow during September-November 1976; with a further 9-percent increase indicated for December 1976-February 1977 over the comparable period ending February 1976. Thus, hog slaughter during the

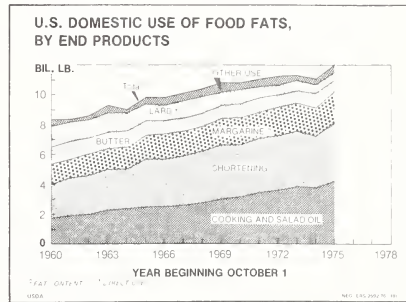
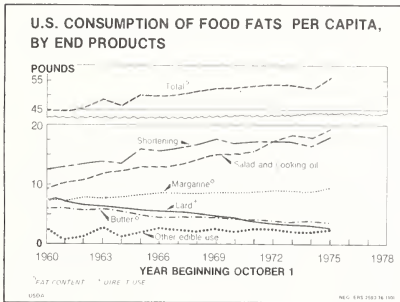
1976-77 marketing year probably will be up around 15 to 20 percent, although lard yields per animal may be off some.

The 1 billion pounds of lard produced in 1975-76 was the smallest of record. Hog slaughter totaled only 69 million head, the smallest since 1953-54. In addition, lard yield per hog slaughtered continued to drop, reaching a record low of 14.2 pounds, 0.8 pounds less than in 1974-75. Lard yields have dropped steadily over the past 2 decades, from around 33 pounds per hog in the mid-1950's to last season's 14 pounds.

Domestic disappearance of lard is expected to increase to around 0.9 billion pounds in 1976-77, up more than a tenth from last year's record low of 0.8 billion. Thus, lard going into shortening and margarine manufacture is expected to gain while direct use may show little change.

Lard exports and shipments in 1976-77 probably will total around 0.2 billion pounds, up slightly from last season. Last year, Mexico, the United Kingdom, Canada, and Puerto Rico accounted for 90 percent of total exports. U.S. lard prices should be more competitive with Continental European lard in 1976-77.

Lard prices (tanks, loose, Chicago) averaged 20 cents a pound in 1975-76, down sharply from 33 cents a year earlier. Prices in early November, at 19½ cents, were 6 cents below a year ago. Also, lard is now running 3 cents below soybean oil; whereas, in November 1975 lard was selling 7 cents above soybean oil. Lard prices were likely to remain at a discount to domestic edible vegetable oils and this should help boost lard consumption.



#### TOTAL FOOD FAT SUPPLY DOWN

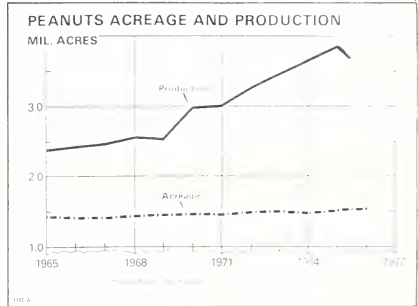
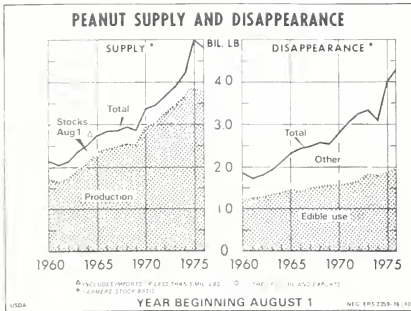
The total U.S. supply of edible fats, oils, and oilseeds during the 1976/77 marketing year is forecast at 11½ million metric tons (including the oil equivalent of the soybean crop, and coconut and palm oil imports), approximately 0.8 million tons, or 6 percent, below 1975-76. Soybean oil accounts for over two-thirds of total projected 1976-77 U.S. supplies. Soybean oil, palm oil, and coconut oil supplies will be smaller than in 1975-76, but more cottonseed oil and lard will be available. Total domestic use of edible fats and oils is projected at 6½ million metric tons and exports are projected at 3.8 million, both near the 1975-76 levels. This would cause carryover stocks on October 1,

1977, to drop to around 1.2 million tons, about 45 percent below the 2.2 million this October 1.

The U.S. per capita consumption of food fats and oils totaled an estimated 56 pounds (fat content basis) in 1975-76, a new record high and 4 pounds above the depressed level of 52 pounds in 1974-75. The previous record high was 54 pounds in 1973-74. Shortening, margarine, and salad and cooking oil use was up sharply, more than offsetting declines in butter and lard. These estimates are based on disappearance data and do not measure actual consumption, which probably was lower due to buildup in inventories at distributing levels. Per capita disappearance of food fats is projected to decline slightly in 1976-77—perhaps to around 55 pounds—reflecting higher prices and some drawdown of inventories.

#### PEANUT SUPPLY OFF SLIGHTLY; PRICES ARE HIGHER

With both carryover stocks and production off, the 1976-77 peanut supply, estimated at 4.7 billion pounds (farmers' stock basis), is down from last year's record 5 billion pounds.



The 1976 peanut crop, estimated at 3.7 billion pounds (net weight) as of November 1, is 4 percent below the record 3.9 billion produced in 1975. The national yield per acre of 2,439 pounds is down 126 pounds from last year. While U.S. acreage allotments were again at the legal minimum, 1.6 million acres, acreage to be harvested this year is placed at 1.5 million acres—1 percent more than in 1975.

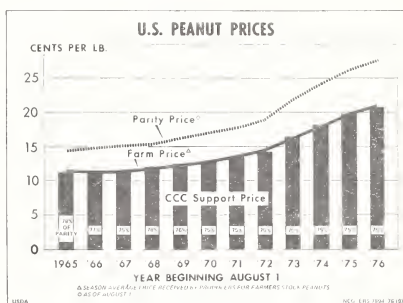
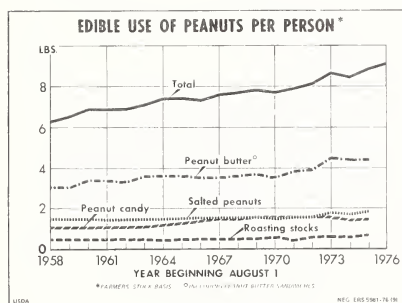
During 1976-77, the use of peanuts in edible products is expected to increase some 4 percent to nearly 2 billion pounds, about the same rate of gain as last season. This total would provide about 9 pounds per capita compared with 8.7 estimated for 1975-76. Despite the anticipated increase in consumption this year, supplies are well in excess of edible and farm requirements. As a result, the CCC is expected to acquire about a fourth of the 1976 peanut crop under the price support program.

The 1976 peanut crop is being supported at a national average loan rate of \$414 per ton (20.7 cents per pound), an increase of \$19.50 over 1975. This rate is 75 percent of the August 1, 1976, parity price, which is the minimum price support level under existing legislation for loans and purchases. Loans to approved grower associations, cooperating in making support available to farmers, will mature on demand by the



CCC. Prices received by farmers during 1976-77 probably will average around 20 cents per pound, slightly above last year and near the CCC support.

USDA announced on November 11 that surplus 1976-crop peanuts acquired through the price support program will be sold for unrestricted use as in past years at from 105 to 107 percent of the loan level, plus carrying charges. Export sales will not be less than 100 percent of the 1976 loan, plus carrying charges. Any peanuts not sold for these uses will be offered at competitive bids for crushing with the use of the oil being restricted to domestic markets. As of November 5 there were about 661 million pounds of CCC-owned peanuts not committed for use.



Also, the CCC will sell approximately 130 million pounds of surplus 1975-crop peanut oil at competitive bids for domestic use only.

CCC sales are expected to start in December and will be so scheduled for the orderly movement of all stocks by September 30, 1977.

#### SMALL FLAXSEED SUPPLY

Flaxseed supplies in the 1976-77 marketing year which started last June are estimated at 13 million bushels (including 1 million imports), about 5 million below the previous year.

The 1976 flaxseed crop is placed at about 7 million bushels, only half as large as in 1975. Acreage for harvest totals 0.9 million acres, down from the 1.5 million of last year. The crop's yield per acre, at 7.7 bushels, is off 2 bushels.

Flaxseed crushings probably will total only 9 million bushels, some 3 million below 1975-76, with smaller supplies a restrictive factor. However, crushings have been trending down over the past 25 years due to declining demand for linseed oil. Last season's crush was the smallest on record. About 1 million bushels of flaxseed are estimated to be available for planting seed, leaving only a small quantity available for export during the 1976-77 marketing year. During June-October 1976 only 0.2 million bushels were inspected for export.

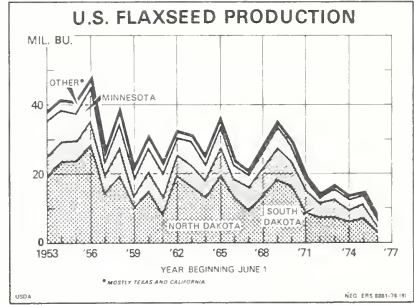
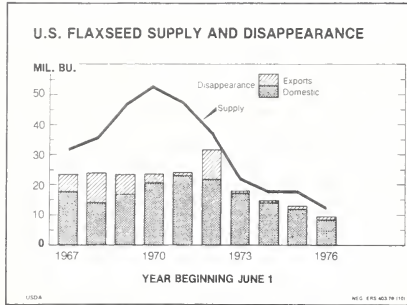
Prices received by farmers for 1976-crop flaxseed averaged \$7.10 during June-October, a shade above a year earlier, but probably will be stronger the rest of the season due to the short crop.

Linseed oil supplies for the current season are estimated at 225 million pounds compared with 279 million in 1975-76. Its use is estimated



at 175 million pounds, leaving 20 million pounds available for export. The major domestic market for linseed oil is in paint and varnish manufacture. Prices for linseed oil (raw, Minneapolis) are averaging around 27 cents per pound compared with 40 cents in 1975-76.

This year's linseed meal supplies are estimated at 175,000 tons, about a fourth below last season, and its domestic feed use may total around 90,000 tons, leaving 75,000 tons available for export. Linseed meal prices (34 percent protein, Minneapolis) in early November were \$149 per ton, \$32 above year-earlier levels, and reflect the strong demand for reduced supplies.

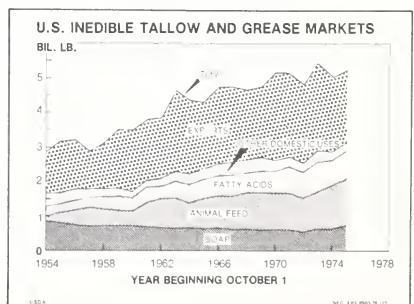
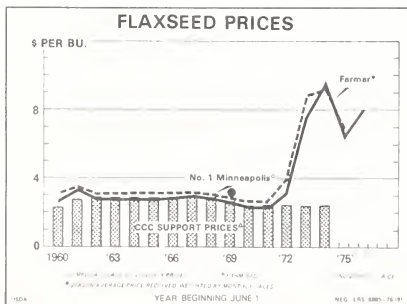


#### INEDIBLE TALLOW OUTPUT TO CONTINUE HIGH

Inedible tallow and grease production in 1976-77 is expected to continue near the year-earlier level of around 5.5 billion pounds. Prospective increases in hog grease probably will offset a decline in inedible tallow output. Because of higher carryover stocks on October 1, total supplies for the marketing year likely will be up a bit.

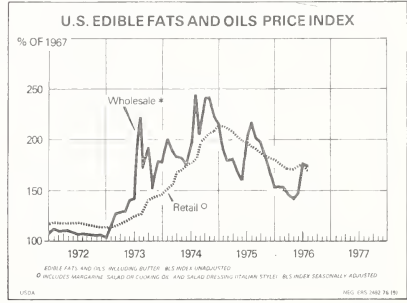
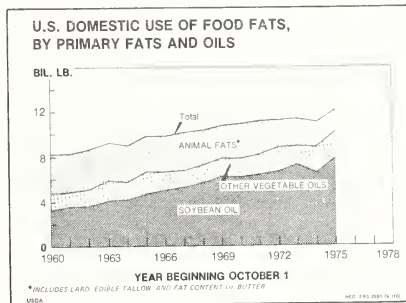
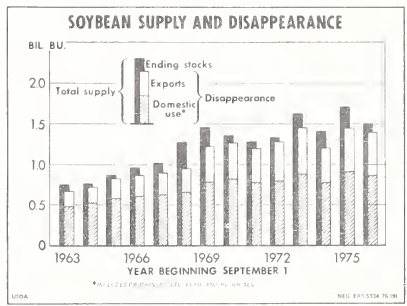
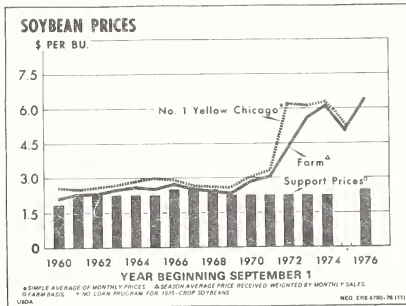
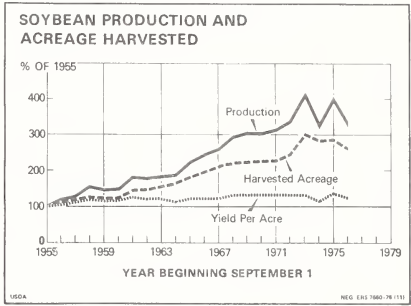
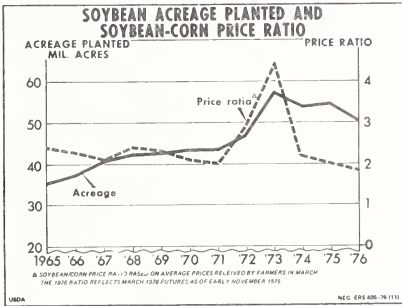
Domestic use of tallow and grease in 1976-77 probably will approximate last season's 3.3 billion pounds. In 1975-76 their domestic use gained 14 percent as use in soap, fatty acids, animal feeds, and lubricants increased. This upturn in industrial activity should carry through the 1976/77 marketing year.

Exports of tallow and grease totaled 2.1 billion pounds in 1975-76, down slightly from the previous year's 2.2 billion. Exports in 1976-77 may exceed 2 billion pounds; however, larger world supplies of many competing fats and oils will result in keener competition. Because tallow is perhaps the cheapest fat moving in world trade, it has estab-



lished a ready market in many countries: Japan, South Korea, Pakistan, Egypt, Colombia, and Western Europe are major U.S. overseas markets.

Inedible tallow prices (bleachable, fancy, Chicago) during 1975-76 averaged 15 cents per pound, up 1 cent from the year before. In early November tallow prices were around 15 cents per pound, a shade less than a year ago. Prices probably will continue relatively high, reflecting little change in the supply situation for 1976-77, continuing strong demand, and the generally higher price level for edible vegetable oils.



## LIVESTOCK OUTLOOK—1977

(By Richard Crom, Agricultural Economist, Economic Research Service, USDA)

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Profits from cattle feeding in 1975 unfortunately encouraged feeders to sharply increase fed beef production this year. As a result, cattle feeders have been forced to endure another year in which losses at times have been substantial. These feeding losses, coupled with uncertainty over developing feed supplies and prices, held nonfed slaughter somewhat above levels expected a year ago. Since this contributed to some further decline in the size of the cattle herd, some encouraging signs are beginning to appear for cattlemen. Hog producers, on the other hand, can look forward to another year of larger supplies.

Commercial cattle slaughter totaled 10.9 million head in the third quarter of 1976, producing 6.6 billion pounds of beef—a record for a quarter. Fed cattle comprised just under 60 percent of this total. The unfavorable position of cattle feeders led to about 7 percent fewer cattle being placed on feed during the summer. On October 1, feeders in 23 States indicated probable marketings this fall of 5.5 million head, down from the summer but up from last fall by a considerable amount. Analysis of the weights of cattle on feed indicate fed marketings this quarter may exceed October 1 intentions by perhaps 250,000 head. Even so, this should still allow for some limited price strength by year's end. Slaughter of cows, bulls and other non-feds, while below year-earlier levels, will push fourth quarter slaughter to about 10.8 million head. If so, commercial cattle slaughter would run 42.8 million head for 1976—up 5 percent from last year. Resultant beef production, 25.6 billion pounds, would be up 8 percent from 1975 as more fed cattle increase average weights. For the year, fed cattle slaughter would comprise 59 percent of commercial slaughter, compared with 52 percent in 1975 and more than 75 percent in 1972-73. Total cattle and calf slaughter, including farm, would run almost 38 percent of last January's cattle inventory.

The addition of an estimated 1.9 billion pounds of imports (both quota and nonquota—carcass weight basis) would make for a 1976 per capita beef consumption of over 128 pounds—up 8 pounds from a year ago. Third quarter beef consumption ran over 33 pounds, up 3 pounds from its year-earlier level. However, the boost in consumption was accomplished by a 20-cent reduction in the retail price per pound, down from \$1.56 in the summer of 1975. But Choice steer prices at \$37 ran \$10-11 per hundredweight below a year earlier this summer as price spreads widened. Feeder steer prices for the third quarter averaged 10 percent over year-earlier levels.

The forthcoming December 1 Hogs and Pigs Report should explain some of the recent increases in hog slaughter over that projected earlier. In late October, weekly federally inspected hog slaughter ran

about 40 percent above a year earlier. The lower fall farrowings in 1975 set the stage for the 7-percent drop in first half hog slaughter this year. The 16-percent increase in this year's spring pig crop suggested a like increase in hog slaughter this summer and fall. While late October slaughter may reflect a seasonal peak in marketings, it is running at a rate of 5-10 percent above expected fourth quarter slaughter. Hog slaughter this year may exceed 73 million head. Per capita pork consumption will be near 58 pounds this year compared with 55 pounds in 1975 and much below the commonly quoted "norm" of 65 pounds. The recent surge in hog marketings along with larger beef and broiler output pushed hog prices down to around \$30 in recent weeks. While some recovery is expected after peak marketings subside, fourth quarter prices will do well to average in the \$32-\$34 range.

Lamb and veal consumption totaled just over 6 pounds per capita in 1975—two-thirds veal. This year both will fall slightly, totaling about 5.5 pounds per person. Calf slaughter will be down about 4 percent from last year, but sheep and lamb slaughter is expected to be down 10 percent for the year. Retail lamb prices have dropped substantially this fall reflecting increased beef supplies. On the other hand, veal prices at retail have remained rather stable throughout the year.

#### CATTLE—1977

If total cattle and calf slaughter reaches 48.6 million head this year, we are heading toward a 121-million-head inventory next January 1. This level of slaughter would represent about 38 percent of the previous January 1 inventory—up 2 percentage points from 1975. Over the cattle cycle, total slaughter has averaged about 36 percent of the beginning inventory. Next year likely will represent a declining slaughter rate in the liquidation phase of the cycle. Total slaughter likely will run above the average but below this year's 38 percent. Feeder cattle prices probably will not rise sufficiently to induce herd expansion next year.

The inventory of lighter weight cattle on feed October 1 points to fed cattle marketings in 23 States of only 5.6 to 5.7 million head for January-March—down 11 percent from a year ago. Recent feeding losses are also expected to hold feedlot placements this fall 5 or 6 percent below year-earlier levels. But adequate feed and feeder cattle supplies, coupled with some improvement in fed cattle prices, appear adequate to support some increase in placements in 1977—up possibly 5 to 6 percent in the first half and perhaps somewhat more after mid-year. Such a placement pattern points to a fed cattle slaughter just under 1976 levels in the spring and summer, then exceed the year-earlier level slightly in the fall. For the year, I look for a fed cattle slaughter near 24.5-25.0 million head, down a little from 1976.

Nonfed steer and heifer slaughter is running 15 to 20 percent below 1975 this year. In light of our smaller cattle inventory and the fact that we are in the down phase of the cycle, a similar reduction is likely next year. This would point to a nonfed steer and heifer kill of more than 5 million head in 1977, unless pastures and ranges are unusually dry. Calf slaughter, which will run about 5 million head this year, will probably show a similar decline.



This leaves us with the big question: What will the cow and bull slaughter run in 1977? This year's commercial cull of about 11.6 million head will be down about 1 million head from 1975. One million head are bulls, so cow slaughter will run 19.5 percent of the beginning cow inventory, compared with 20.4 percent in 1975. This compares with the 19.4 percent cull rate experienced in 1955 and 1956—a corresponding stage in a previous "deep" cattle cycle. The cull rate in 1957 dropped to 18.5 percent. While feeder cattle prices, and pasture and range conditions, particularly in the summer and fall, will play a substantial role in determining cow and bull cull, 10.5 million head appears to be a realistic working number at this time—10 percent below 1976 and between 18 and 19 percent of the probable beginning cow inventory.

TABLE 1.—CATTLE BALANCE SHEET

	Jan. 1 inventory	Imports	Calf crop	Slaughter		Death loss	Exports	To balance
				Cattle	Calves			
1970.....	112.4	1.2	45.9	35.4	4.2	4.3	0.1	-0.9
1971.....	114.6	1.0	46.7	35.9	3.8	4.5	.1	-.1
1972.....	117.9	1.2	47.7	36.1	3.2	5.1	.1	-.8
1973.....	121.5	1.0	49.1	34.0	2.4	6.5	.3	-.7
1974.....	127.7	.6	50.8	37.3	3.2	6.1	.2	-.5
1975.....	131.8	.4	50.4	41.5	5.4	7.0	.2	-.5
1976 <sup>1</sup> .....	128.0	1.0	46.9	43.3	5.3	6.0	.3	-----
1977 <sup>1</sup> .....	121.0	1.2	46.5	40.6	4.4	6.0	.4	-----
1978 <sup>1</sup> .....	117-119							-----

<sup>1</sup> Projected.

This adds up to a 1977 total cattle slaughter, including farm slaughter of 44½ to 45 million head—down 8 percent from 1976 and about 37 percent of the beginning inventory. Fed cattle would make up a little more than three-fifths of this total. Usual slaughter weights would point to slightly over 24 billion pounds of beef with a per capita availability (assuming imports just under 8 percent of domestic production) of 120-122 pounds.

Our declining number of cows probably cannot produce a calf-crop much greater than this year's which was lower than expected due to more cow cull, older cows, and generally unfavorable calving conditions. If this is the case and slaughter runs in line with our current expectations, usual death losses and other minor inventory items would push the January 1, 1978 cattle inventory below next January's figure, perhaps by as much as 2-4 million head.

#### HOG SLAUGHTER UP IN 1977

The question is not if but how much slaughter will increase next year; and will the expansion phase of the hog cycle end during the year? The December 1 Hogs and Pigs Report will give us a better picture.

Currently the June-November pig crop this year is expected to run just over 42 million head, up 18 percent from a year earlier and slightly larger than the December-May 1976 crop. This points to a first half 1977 slaughter of about 41 million head with just over half coming in January-March.



The breeding season for sows farrowing during December–May commences in August and will end this coming January. In light of current hog and corn prices, which yield a hog-corn ratio of under 14 to 1, producers are expected to curtail breeding plans. Some packers report October barrow and gilt slaughter showing a higher proportion of gilts. While the December–February portion of the spring crop may still run about a tenth over a year earlier, we look for the March–May portion to be near this year's crop.

If hog prices hold in the mid- to upper-\$30's during the first half of the year, the hog-corn ratio will hold near 13 to 1. This would indicate a less profitable operation which should lead to a small cut in fall 1977 farrowings.

But 1977 slaughter will come from the fall 1976 and spring 1977 pig crops which when combined, are expected to exceed 85 million head. Such a crop will support a 1977 slaughter of 80 to 82 million head, a pork production of over 13 billion pounds (up 12–13 percent), and a per capita consumption of about 64 pounds.

Note that this level of production is still slightly below that considered "normal"—65 pounds. If the fall 1977 crop is down 5 percent or more, 1978 pork production will run below that of 1977.

#### LESS VEAL AND LAMB IN 1977

Calf slaughter is expected to be down 15 to 20 percent next year as we wind down the liquidation phase of the cycle. Commercial slaughter probably will run near 4 million head compared with about 5 million this year. This will produce about 3 pounds of veal per capita distributed fairly evenly over the year.

Lamb production is expected to continue its downward trend. Slaughter of sheep and lambs in 1977 probably will run between 1.6 and 1.7 million head per quarter—6.6 million for the year compared to 6.8 million in 1976. This will reduce per capita lamb consumption to 1.8 pounds—down 10 percent from 1976.

#### RED MEAT SUPPLY NEAR 1976 LEVELS

Consumers will have more pork to offset small reductions in other red meats. Total red meat consumption in 1976 will run about 192 pounds compared with 181 pounds in 1975. But the 1977 components add to about 190 pounds—120–122 pounds of beef, 3 pounds of veal, 64 pounds of pork, and less than 2 pounds of lamb. Moreover, the expected supply by quarter is about the same, varying by only a pound. It also appears that more poultry will be available during the first half of the year.

Retail beef prices in 1976 will average about \$1.39 per pound; pork will run about \$1.36. Consumer spending for meat in 1977 is expected to equal that of the past year, but beef will gain some at the expense of pork. Look for beef prices in 1977 to average about 10 cents per pound higher than this year's average, while pork prices may average 5 cents or more lower. Retail pork prices likely will be lowest this winter while beef will peak seasonally in the summer months.

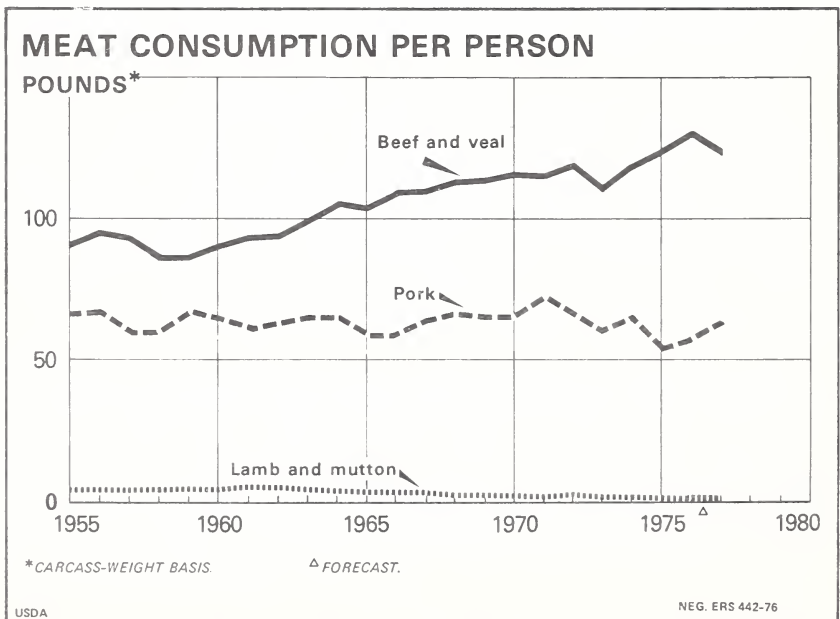
## 1977 PRICES—CATTLE—HOGS

Livestock prices will follow the retail market, but price spreads will do well to hold at year-earlier levels. However, we likely will see some seasonal variations in the spread and some further price movements as the slaughter mix changes due to marketing patterns and grade composition.

For the year we look for Choice grade slaughter steers to average \$43–\$45 per hundredweight (at Omaha) up from this year's probable \$39 average. Barrows and gilts (7 markets) may run \$35–\$37, above the current low \$30's but substantially below their probable 1976 average of \$43. Steer prices likely will show some strength in the first quarter as the beef supply, especially fed beef, is down from the fall slaughter. We look for a \$41–\$43 average for the winter quarter with a moderate advance in the spring as non-fed supplies decline seasonally. These slaughter prices should be fully reflected in the feeder market; however, feeding costs will keep the spreads narrow. Cattle feeders should cover feed and feeder costs in 1977, and many will cover all costs, especially after winter. But profits look like they will be quite modest. Hog prices are expected to run slightly below the annual average during the first half of 1977.

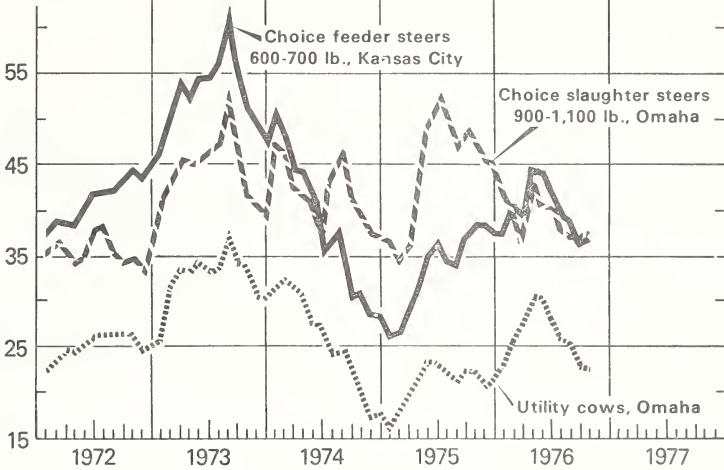
## A GLIMPSE OF 1978

Total red meat production likely will be off a few pounds per person in 1978. Cattlemen may commence rebuilding herds and hog producers are expected to reduce farrowings after mid-1977. This points to slightly less beef, pork, and lamb with a moderate decline in veal production. However, per capita red meat consumption in 1978 will still exceed any year prior to 1970.



## CATTLE PRICES

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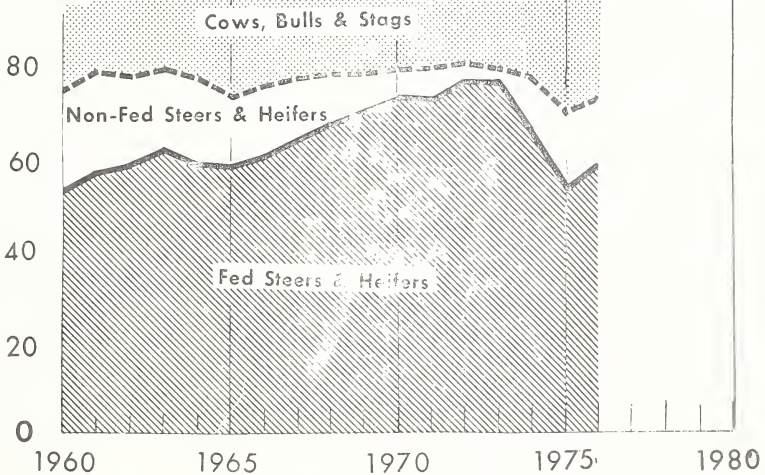


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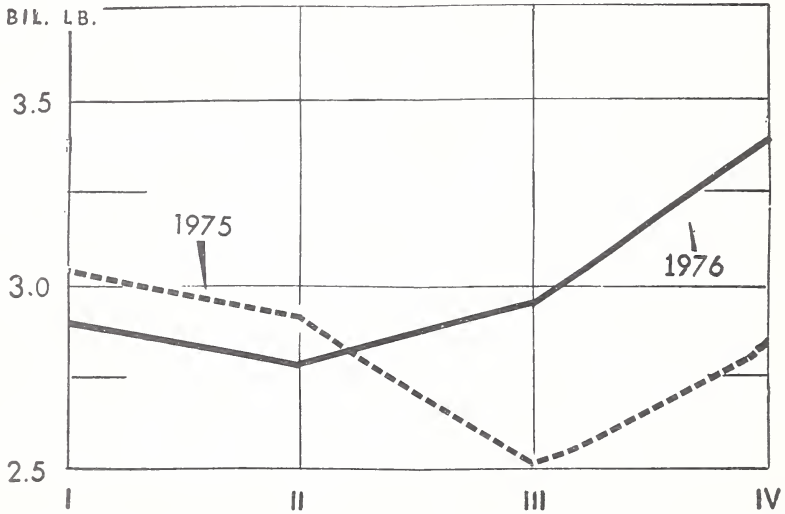
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## CATTLE SLAUGHTER

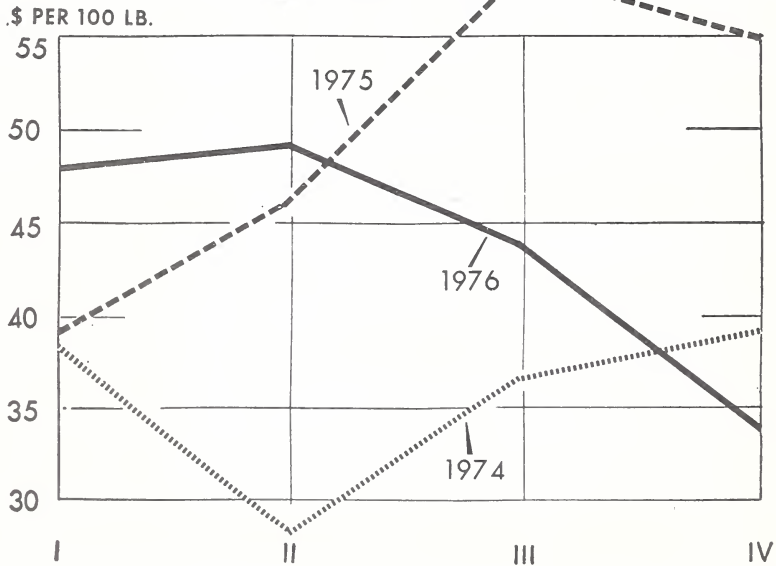
PERCENT



## COMMERCIAL PORK PRODUCTION



## HOG PRICES



## OUTLOOK FOR POULTRY AND EGGS

(By William E. Cathcart, Economic Research Service, USDA)

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This year the broiler and turkey industries have lived up to their reputation as "boom and bust" industries. A year ago poultry producers were sharply expanding their output because profits were excellent and the situation looked favorable for 1976. However, as poultry producers pushed output to record levels and the supplies of competing red meats also expanded, the situation became increasingly less favorable. By late summer, many broiler and turkey producers were losing money.

Poultry producers are currently operating in the red and prospects are not favorable for the first half of 1977. Feed costs will likely be above a year earlier and pork supplies will be sharply higher. Also, poultry output will continue relatively large.

On the other hand, egg producers' profits have remained good throughout this year since turning positive last fall. Prospects look favorable for eggs in 1977 unless producers overexpand.

### OUTLOOK FOR RED MEATS, FEED PRICES, AND THE GENERAL ECONOMY

Prospects for the egg, broiler, and turkey industries during the next year are tied closely to developments in corn and soybean prices, supplies and prices of red meats, and general economic conditions. My remarks on these topics will be brief since they have been fully covered by others in this conference.

Gains in red meat output have impacted sharply on broiler and turkey prices this year and will continue to do so in 1977. Commercial red meat production for all of 1976 may increase by about 7 percent over 1975 to near 39 billion pounds. This means an additional 2½ billion pounds of red meats competing with broilers and turkeys for consumer dollars. Prospects are that total red meat output during the first half of 1977 may show little change from a year earlier, but the mix will change substantially. Beef output is expected to decline around 7 percent from a year earlier, but pork may be up a fifth. This means that beef prices likely will be stronger during the winter and spring while pork prices will remain at a low level. Thus, poultry producers will be facing much stronger competition from pork in the first half of next year.

Feed supplies and prices are very important to the poultry and egg industries since feed costs account for two-thirds to three-fourths of production costs. Despite another large corn crop, relatively small carryover of feed grains this past October 1, and a smaller 1976 soybean crop mean market prices for feed grains and soybean meal will continue to be sensitive in coming months. Current prospects are that feed



grain prices during the October–September 1976/77 grain marketing year may average around year-earlier levels. However, with a smaller soybean crop, soybean meal prices will be higher. This will likely result in a little higher feed prices for poultry producers. However, much will depend on how the producers time their feed purchases.

General economic conditions have improved this year, and prospects continue favorable for further growth in the general economy despite a slow-down in the third quarter. The annual rate of increase of the gross national product, seasonally adjusted, dropped to 4 percent for July–September from 4.5 percent for April–June. However, inflation also eased to a 4.4-percent annual rate from 5.2 percent. Consumer incomes continue to increase. Real per capita disposable income is likely to rise 3 to 3½ percent this year. This should add up to continued expansion in consumer demand for food (including poultry and eggs) in the coming year.

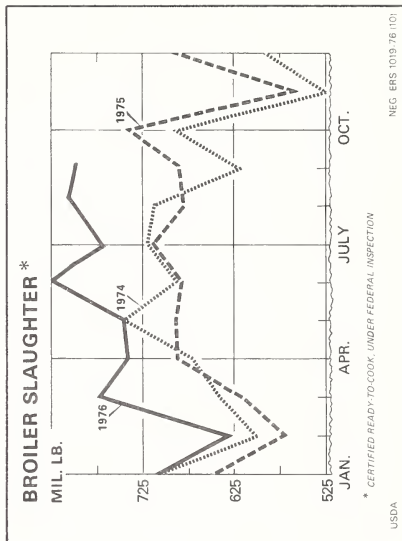
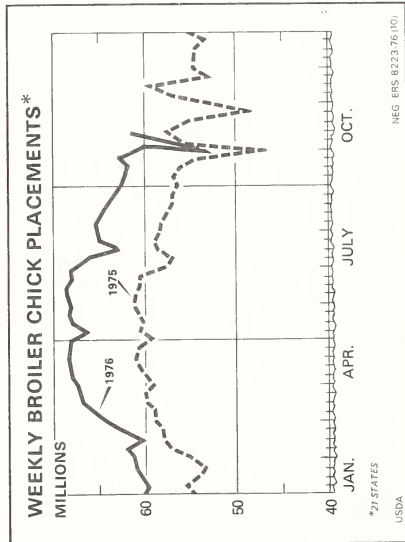
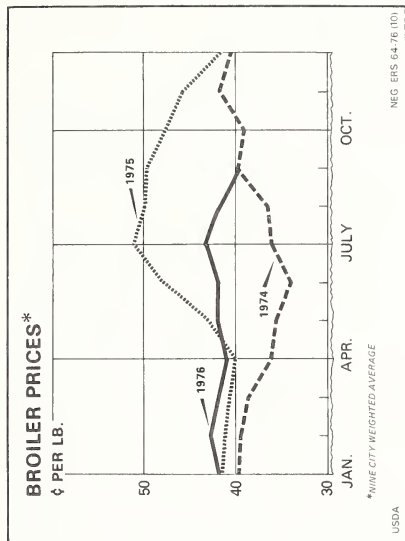
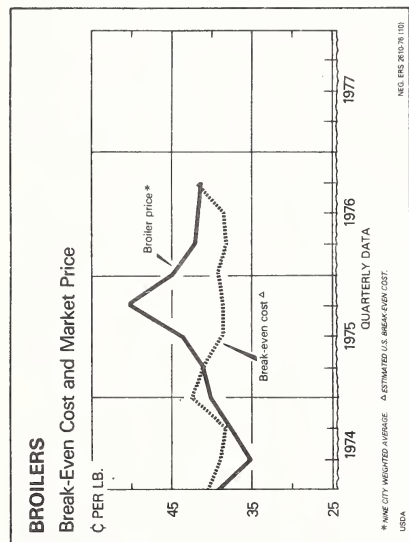
#### BROILERS

Broiler producers were in a cost-price squeeze during 1974 and into early 1975. But feed prices eased and broiler prices strengthened in early 1975, and producers started expanding output. By the fourth quarter of 1975, broiler meat output was 11 percent above the same period of 1974. Broiler production continued to expand rapidly in 1976 and for all of this year will reach a record of 9.1 billion pounds (ready-to-cook weight). This would be 13 percent more than in 1975 and about 12 percent above the previous record in 1972.

Broiler meat output in federally inspected plants through September this year exceeded a year earlier by nearly 14 percent. There were a little over 12 percent more broilers marketed at almost 2 percent heavier weights. Output this fall will continue at record levels, but the margin over year-earlier levels will narrow to around 10 percent. Chick placement and egg sets for December marketings have been reduced to only around 7 percent above year-earlier levels.

The short production period—8 to 9 weeks from time the chicks are hatched until the broilers are marketed—gives broiler producers the ability to rapidly change their production plans. However, historically, broiler producers have not responded to unfavorable profit situations as rapidly as they could. This is expected to be the case in coming months, even though many producers have lost money in recent weeks and are likely to continue to be squeezed in early 1977.

Selling of broilers under a brand name is a factor that has entered the picture in recent years. Since producers don't want to give up these hard-won markets, they are reluctant to curtail expansion plans. Also, some producers enjoy a price premium for their brand named birds which helps them cover increased production and marketing costs.



Considering the above factors, our best estimate is that broiler producers will gradually slow their rate of expansion in 1977. First quarter output may be around 6-8 percent above January-March 1976. However, production may drop back to year-earlier levels by mid-1977. Second half output will depend largely on supplies and prices of competing meats and feed ingredients. Under the most favorable conditions, broiler output in the second half of 1977 is expected to show a small increase from 1976. Conversely, unfavorable conditions would likely lead to a small decline in output.

Broiler prices continued relatively strong this summer in the face of sharply higher supplies of both poultry and red meats and declining red meat prices. Total commercial red meat production and federally inspected broiler and turkey meat output during July-September was up more than a tenth from a year earlier. Wholesale broiler prices in nine cities during July-September averaged 41.5 cents a pound, down only slightly from April-June but almost 9 cents below a year earlier. Broiler prices normally drop in the fall but the drop has been sharp this year. In October, prices averaged a little under 36½ cents a pound, 11 cents below a year earlier and the lowest monthly average since June 1974. Broiler prices are expected to continue weak in coming months. For October-December, prices may average near the 35-cents-a-pound range, down from 45 cents in 1975.

Broiler prices next winter and spring may show some small seasonal increase, but wholesale prices in the nine city market likely will average 2 to 4 cents a pound below the 42-cent average of January-June 1976. Broilers will continue to face increased competition from red meats. Total red meat supplies may not differ much from a year earlier, but the mix and prices will change substantially. Beef supplies are expected to be moderately lower and prices higher, but pork output will be sharply higher with correspondingly low prices.

Disappearance of broiler meat in 1976 has been well above 1975. Preliminary data indicate consumption of chicken meat during January-August increased nearly 2½ pounds over a year earlier to 29.3 pounds per person. Young chickens (primarily broilers) accounted for all of the increase as other chicken was down about a third of a pound. Consumption of chicken meat for all of 1976 is likely to total a record 44 pounds per person. This compares with 40.3 pounds in 1975 and the record 42 pounds of 1972.

Exports of young chicken are up sharply this year. During the first 8 months of this year, exports totaled a record 171 million pounds, nearly double the same months of 1975 and 39 million more than the previous record for this period in 1962. More parts were exported than whole birds, but a larger portion of the total were in whole form than in other recent years because of the quantity of whole birds exported to Iraq. Whole birds accounted for 34 percent of the total exported, compared with only 13 percent in the same period of 1975. Exports are likely to continue at record levels in coming months.

In addition to exports during January-August, 89 million pounds of young chicken were shipped to American territories (largely to

Puerto Rico, Virgin Islands, and Samoa), up 8 percent from a year earlier.

#### TURKEYS

Turkey production this year is also at record levels. The Statistical Reporting Service has estimated the 1976 turkey crop at 138 million turkeys, 11 percent more than in 1975 and 4 percent more than the previous high in 1973. This estimate is largely based on the number of turkeys hatched during the period September 1975 through August 1976.

Turkey meat output in federally inspected plants through September totaled 1,286 million pounds (ready-to-cook weight), up 19 percent from 1975 and slightly above the January–September 1974 output. There were nearly 17 percent more turkeys marketed this year than last at a 2 percent heavier average weight.

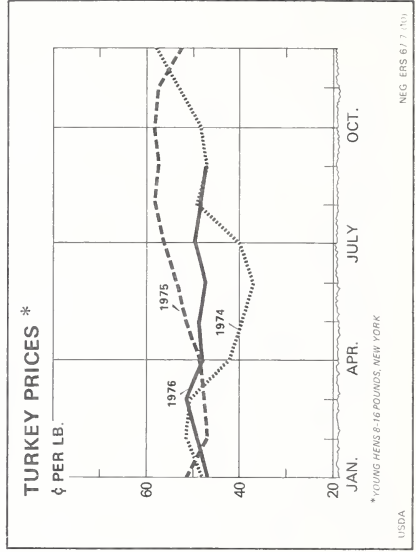
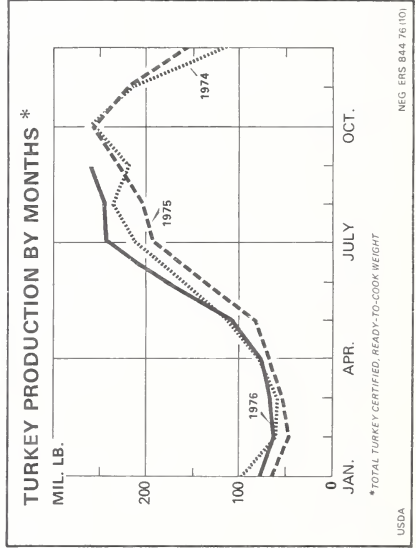
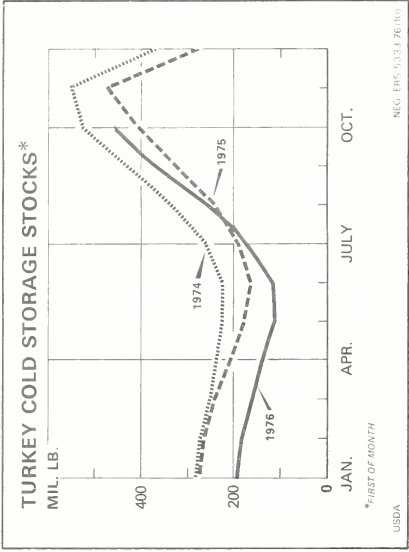
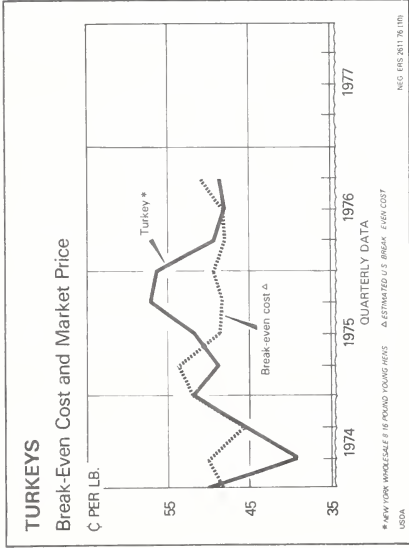
Earlier poult production indicates that output will continue at record levels during the rest of 1976. Output this fall should be up 6 to 8 percent.

Record turkey production, combined with large supplies of competing meats, has resulted in prices well below a year earlier. With lower turkey prices and rising production costs, producers have suffered in recent months. Our estimated costs of production for turkey implies that producers lost several cents a pound on turkeys sold during August–October. The estimates of the cost of production will vary depending on when the feed was purchased. Our estimate for turkeys uses a feed price lagged 3 months.

Turkey producers showed signs early this summer that they were adjusting to the unfavorable profit margins. Poult production in August fell 6 percent below 1975 levels—the first time since May 1975 that poult production was less than the same month a year earlier. Profit margins probably have not improved in recent months but producers did not maintain the August drop in poult production. September's poult hatch was only 2 percent below 1975 and eggs in incubators on October 1 indicates poult production in October was above last year. These figures would tend to indicate that first quarter 1977 turkey meat output would be about the same as a year earlier. However, at times advancements of the poult hatch can give misleading indications of the level of future marketings.

Second quarter output will likely be below a year earlier and this trend could continue through much of 1977. The level of turkey production in the second half of 1977 will depend on how well they do in the first half and prospects for feed ingredients, competing meats, and general economic conditions.

Although first half 1977 turkey meat production will likely be below 1976, the decline will be at least partially offset by expected larger cold storage stocks at the start of 1977. Cold storage stocks at 195 million pounds at the beginning of this year were 80 million below January 1, 1975. However, sharply higher production this year caused cold storage stocks to grow relative to a year ago. On October 1, stocks totaled 457 million pounds, 47 million above a year earlier.





Sharply higher turkey production and large supplies of competing meats have held turkey prices below year-earlier levels since last spring. New York wholesale prices for 8-16 pound young hen prices in January-September averaged about 49 cents a pound,  $3\frac{1}{2}$  cents below the same months in 1975. Prices in October continued weak and averaged a little under 48 cents a pound, 10 cents below October 1975. Turkey prices will continue to be pressured by large supplies and weak prices for pork and broilers in coming months. Prices are expected to remain relatively weak during the balance of 1976 and during the first half of 1977, with prices falling to the mid-40-cents-a-pound range in early 1977.

Turkey meat use this year has been above last year. Consumption of turkey meat during the first 8 months of 1976 was around 5 percent larger than the 2.8 pounds per person in the same months of 1975. Total consumption for all of 1976 is expected to total near 1972's record of 9 pounds per person. This would compare with 8.6 pounds in 1975.

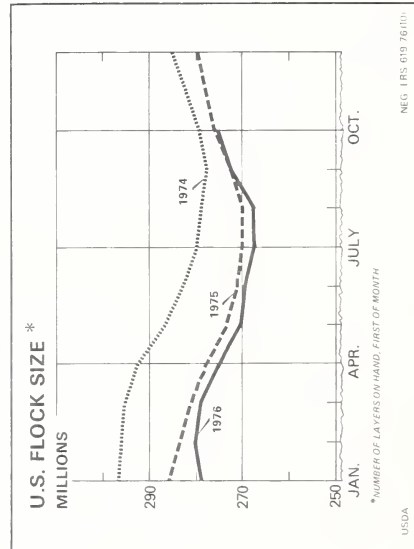
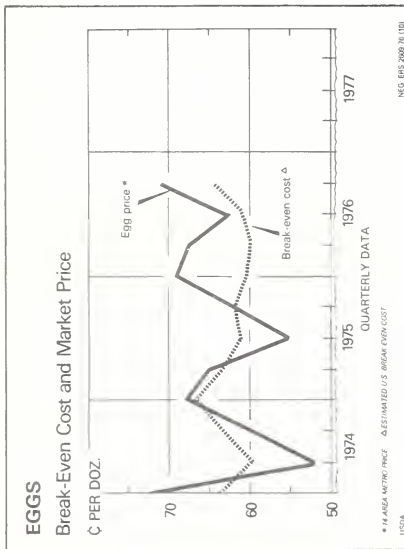
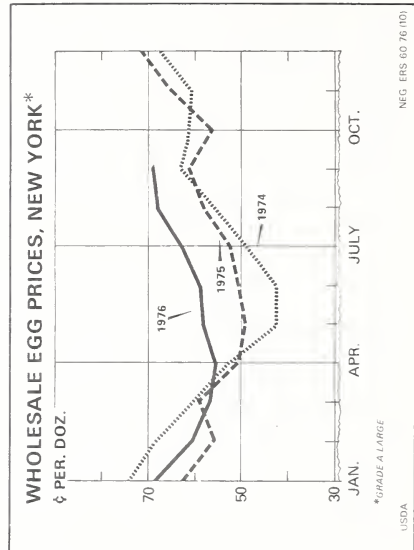
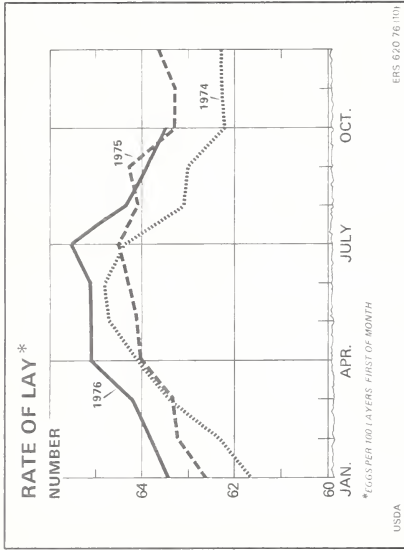
Movement of turkey meat into export channels has increased in 1976. Through the first 8 months of this year, exports of turkey meat totaled 41 million pounds, 66 percent above January-August 1975. With larger supplies available at lower prices than a year ago, exports likely will continue larger in coming months but the increase over a year earlier will narrow.

Large quantities of turkeys have been purchased by USDA to be used in child nutrition programs (primarily school lunches), and elderly and other domestic food programs. Purchases from July 1-October 28 total 35 million pounds of ready-to-cook young turkey and 10.6 million pounds of cooked turkey rolls. This is the equivalent of around 52 million pounds ready-to-cook carcass weight. In addition, USDA has purchased 2.2 million pounds of canned boned turkey, equivalent of 3.7 million pounds of ready-to-cook carcass turkey. During 1975, turkey purchases by USDA were small and totaled only 19 million pounds for the entire year.

#### EGGS

Egg producers have had a good year in 1976 and prospects for 1977 continue favorable. Producers generally have had positive profit margins since August 1975—the longest period of sustained profits in many years. This is welcome relief for egg producers because in the past few years prior to 1976 eggs output dropped but so did egg prices.

Egg production in January-September totaled 48.3 billion eggs slightly above a year earlier. Layer numbers in the period averaged around 273 million birds, down 1 percent from 1975. However, output per bird was up around 1 percent and there was an extra day of production because 1976 is a leap year.



Layer numbers continue to run below 1975, but they have shown significant gains since the beginning of the year. They began 1976 about 21½ percent below 1975 but were only marginally lower by September 1. They lost a little ground in September but the number

will gain again in coming months because of more replacement pullets. Layer numbers may surpass a year earlier late this year or in early 1977. The egg-type hatch during April–September indicates there will be a few more pullets available for flock replacements through the first quarter of 1977 than in 1976. However, the small increase in replacement pullets will not be enough to substantially increase layer numbers. And if profit margins narrow or disappear because of rising feed prices or declining egg prices, the increase in pullets may be more than offset by heavier culling of old flocks. Short term adjustments in layer numbers can be made through management decisions on whether to send old layers to slaughter or to hold them in the flock by force molting.

Heavier culling of old flocks this year have partially offset the increase in replacement pullets. Mature chicken slaughter during January–September in federally inspected plants was up 4 percent from the comparable period of 1975. August–September slaughter alone was up 2.6 million birds, or more than a tenth from a year earlier. Despite heavier slaughter, force moltings continue relatively heavy. However, the number of force-molted birds in flocks has dropped below a year earlier. On October 1 in 17 States, 3.6 percent of the layers were being force molted while 15 percent had completed at least one molt. This compares with 3.8 and 16.7 percent, respectively, a year earlier.

Egg production was above 1975 levels during February–July but dropped slightly below in August–September when output per hen declined. The rate of lay is expected to bounce back to above year-ago levels in coming months and, combined with a gain in layer numbers, this is expected to result in egg production around 1 percent above a year earlier this fall. Egg production likely will show some further increase and average 1–2 percent higher than a year earlier during the first half of 1977. Summer and fall production next year will largely depend on next year's feed grain and soybean crop and producers profit margin next winter and spring. If market prices for eggs exceed production and marketing costs as now expected in early 1977, producers likely will continue to hatch more pullets for flock replacements during the second half of 1977. This would suggest continued larger production during the second half of 1977.

Production has been up this year, but there have been fewer eggs available for consumption because of reduced stocks and increased hatching use. Cold storage stocks of shell eggs and frozen eggs on January 1—at 28 million dozen (shell equivalent)—were down nearly a third from a year earlier setting a record low for that date.

The sharp increase in broiler output has resulted in a substantial increase in the use of eggs for hatching purposes. Through August, about 3.3 billion eggs were used for hatching purposes, 10 percent more than last year. Hatching use took about 7.7 percent of total egg production, compared with 7 percent last year.

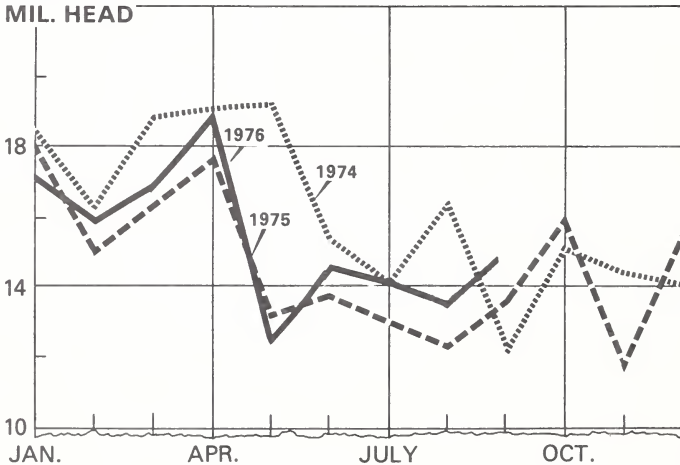
With more eggs going for these purposes, eggs available for civilian consumption have been slightly below a year ago. At the same time, slightly more of the available supplies went to the producers of egg products. Through August, breakers processed 2 percent more eggs than in the comparable period of 1975. Egg breakers are expected to continue using more eggs than a year earlier in coming months because of the record low stocks of frozen egg products and the relatively low level of breakings a year earlier.

For all of 1976, egg production likely will average around 5.4 billion dozen eggs, up 1 percent from 1975. However, lower stocks and increased hatching use along with the normal gains in population will result in egg consumption in the United States continuing its downward trend of recent years. Consumption may drop around 2 to 4 eggs per person below the 278 registered in 1975.

Lower available supplies and relatively strong demand has resulted in higher egg prices since last winter. Improvements in the general economic conditions likely have contributed to the demand for shell eggs and egg products. Wholesale prices for grade A large eggs in New York averaged nearly 67 cents a dozen during the July-September quarter, nearly a dime above a year earlier. The demand for eggs is expected to remain relatively strong this fall and winter but to decline as usual next spring. There likely will be some decline in the number of eggs going for hatchery purposes, but this will probably be offset by heavy demand for shell eggs for processing into egg products.

### MATURE CHICKEN SLAUGHTER\*

MIL. HEAD



\*FOWL FROM BREEDER AND MARKET EGG FLOCKS.

## POULTRY AND EGG OUTLOOK

(By Ralph L. Baker, Extension Economist, Ohio State University)

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Mr. Cathcart has done a relatively complete job of looking at the poultry and egg outlook. Rather than react to all of his individual statements I plan to make a few comments on the short-time outlook and then look at some of the recent production levels of each of broilers, turkeys, and eggs.

I want to particularly emphasize some of the differences among the three commodities because I think it is here that we can help industry people make better longrun decisions.

### BROILERS

I agree with Mr. Cathcart's projection that broiler production will exceed year earlier in the early part of 1977 but will be back to year earlier levels by mid-1977. These production levels will cause 9-city broiler prices to be in the high mid-thirties in the first and second quarters of 1977 and somewhat higher prices as we move into the high broiler demand summer months.

Now I want to look a little at the development of the broiler industry—not because you are not aware of it but because we need occasionally to look back in order to help us look forward.

In 1945, 366 million broilers were grown in the United States. In the next 9 years broiler production increased 682 million head and the industry reached the first billion bird level in 1954. The 2 billion bird level was reached in 1962 or a doubling in 8 years. (In its earliest years of development the broiler industry doubled about every 4 years.) By 1970, the broiler crop was just under 3 billion or the addition of another billion in 8 years. Production appeared to plateau for 6 years from 1970 to 1975 and then with a big assist from the pork industry, broiler prices skyrocketed in 1975 as Mr. Cathcart has indicated and so has production in 1976.

From 1946 to 1970 the number of broilers grown was higher in each year than in the previous year with prices moving irregularly lower. Why was the industry able to expand regularly? The price elasticity of demand was relatively high and as prices fell consumers bought more broilers. There were two major sources of more household consumption. One was to get more families to prepare and eat chicken. The other was to get those families who were already eating chicken to eat it more often. Later on chicken became a favorite at fast food outlets. Now nearly all families eat young chicken so consumption expansion means getting present users to serve it more often.



Then, of course, we have and have had expanding human population. But for the 10 years of 1945 to 1955, U.S. population increased 25.5 million. From 1965 to 1975 the increase was 19.2 million. One estimate is that U.S. population will increase 17.6 million from 1975 to 1985. The only other avenue of demand expansion is increasing exports.

As the broiler industry has developed, the supply schedule kept moving to the right as biological and organizational efficiencies kept improving. New broiler areas grew up with improved facilities and better location of stages relative to one another. The well-coordinated units and the improved biological efficiencies mean there is still room for growth in the broiler industry but at a slower pace than in the past. Location relative to feed supplies and consumer markets will become increasingly important as increased energy costs are reflected in transportation costs. It is not surprising to see broiler complexes moving part of their operations into the Midwest with its surplus feed and deficit broiler production.

#### TURKEYS

I agree basically with Mr. Cathcart's turkey projections. The first quarter of 1977 is already covered by the poults hatched and eggs set. And the 9-States reports indicate marketings may be up 1 percent. A cutback would be economically logical. But all members of the turkey industry are not necessarily logical at all times.

Now looking at the longer run situation for turkeys—the growth of the turkey industry has not been constant like the broiler industry was from 1946 to 1970. The size of the turkey crop has gotten irregularly larger. The 1976 crop is a good example of leaping forward and 1977 will be a good example of slipping backward.

The first crop of 100 million or more turkeys was raised in 1961. Prices for the 1961 crop precipitated the marketing order vote of 1962.

In 1961–65, the crop averaged 100 million with the range being from 92 million in 1962 to nearly 108 million in 1961. In the next 5-year period, the turkey crop averaged nearly 114 million and ranged from a low of about 107 million in 1968 and 1969 to a high of 127 million in 1967—another price bust year.

In 1971–75, the crop averaged 127 million with a range of 120 to 132 million. Interestingly, the *high* production of one 5-year period was the *average* production of the succeeding 5-year period. The increase in the turkey crop from 1961–65 to 1971–75 was 27 million head.

In contrast to the broiler industry, the Midwest is still the major turkey growing area. There has been growth in Southern States but the preliminary estimate of the 1976 crop places 42 percent of it in the North Central States, 36 percent in the South, 19 percent in the West and 3 percent in the North Atlantic States. The five leading States in 1976 are, in order, Minnesota, California, North Carolina, Missouri, and Texas.

While still highly seasonal, each of the production and consumption of turkeys is moving toward a more nearly year around basis. The apparent disappearance of turkeys increased from 296 million pounds in

January-June 1965 to 604 million pounds in January-June 1976. One-half of the 1975 turkey crop was sold in nonwhole body form. As turkey sales move to year around and to parts, they become closer competition to broilers.

Although great strides have been made in growth and feed conversion rates of turkeys, they are not as efficient as broilers. This will likely result in slow net expansion of turkey production. If there are product break throughs in making off-season consumption of turkey meat more acceptable to consumers, expansion of consumer demand could be increased.

The expansion that occurs in the turkey industry will be largely where industry members see possibilities of profit increases through capital infusion. Large year-to-year increases such as occurred this year in some States are not economically logical, however.

#### EGGS

For eggs, I would like to look at some different numbers than Mr. Cathcart used. Then, I will get into the longer run situation. One of the pieces of data we keep is an estimate of the number of commercial layers in their first 14 months of lay. This is simply a projection of the egg-type pullet chick hatch with a mortality estimate built in. This number for the current month is 1.6 million below November of a year ago. Beginning with December this number moves ahead of year earlier and by April 1977 will be 6 million ahead of April 1976. This implies an increase in egg production over last year. Much depends upon what happens to the slaughter rate and to forced molting, of course.

The commercial egg production flock has been below year earlier during 1976 by a greater amount than the SRS numbers have indicated. This is because there have been more broiler breeders in the national flock than a year earlier. For instance, in September, the number of layers on U.S. farms was down 800,000 but the estimate of commercial layers was down 3.5 million from a year ago. Mr. Cathcart corrects for this difference by subtracting the number of eggs used for hatching purposes. This is probably more accurate than computing a commercial egg flock. But the market egg or commercial egg flock gives us a notion of the effect of added pullets to the relative size of the flock.

The use of the commercial egg laying flock permits us also to project the number of layers over 1 year of lay. In September there were 7 million fewer commercial layers over a year of lay than a year earlier. This implies a continued high rate of lay.

The higher holiday season demand for eggs, including egg products, will keep prices at relatively high levels the rest of 1976. In the first quarter of 1977 New York wholesale large egg prices are likely to be about 5 cents a dozen higher than a year earlier. By second quarter these egg prices will likely be 1 to 2 cents above a year earlier. If the hatch continues at resent rates above year earlier, egg prices by the third quarter will likely be 3 to 4 or more cents a dozen under July-September 1976.

Now to the longer run pattern of eggs—egg production has grown little in recent years. In fact, in 1966–70, U.S. daily average egg production was 186.1 million. In 1971–75, daily egg production was 184.3 million or down 1 percent from 1966–70. Production in 1975 was 176.2 million eggs per day, the lowest since 1963. Production in 1976 will be slightly higher than in 1975 and 1977 will exceed 1976 as the industry moves toward lower net prices.

It should be kept in mind that the demand for eggs is quite inelastic and a small change in supply causes a relatively large change in price. I am afraid that there are still some people left in the egg business or maybe even thinking of entering the egg production business who are not aware that the growth of the broiler industry is not indicative of what can be done in the egg industry. The egg industry has become efficient and there is nothing on the horizon that would indicate any great leaps forward soon.

The egg industry has managed to almost hold egg production with 20 percent fewer egg-type chicks hatched than 10 years ago and 9 percent fewer commercial layers. Reasons for the differences have been more eggs per hen and more forced molting. Record numbers for forced molting have been set in 1975 and 1976. The highest rate of lay of anytime since data were first kept in 1925 was 65.5 eggs per 100 hens on July 1, 1976.

On the demand side, the egg industry is just beginning its first well-financed promotion program. If it does nothing more than offset the effects of all of the negative cholesterol publicity, it should be considered a success.

Another new operation in the egg industry is Eggmar, a joint selling agency. It, at least, can keep a buyer from pitting seller against seller in a lowest bid game.

Regionally, the Southern States have obtained a larger share of the egg business. But their percentage of the total was slightly lower in 1975 than in 1970. They increased their percentage of total egg production from 27 in 1960 to 42 in 1970. The Midwest percentage of national egg production dropped from 42 percent in 1960 to 25 in 1970 but there was evidence of a slowdown as the percent drop was only 1.3 from 1970 to 1975. As transport costs increase, areas near population centers and feed supplies will gain.

Further expansion in the egg industry will be largely at the expense of someone already in the business as profitable national production is not likely at much more than current levels. Hen numbers are now in their 63d consecutive month of being lower than in the same month of a year earlier. Only two of the five years have been really profitable. Only if feed prices were to drop dramatically could the egg industry afford some expansion.

The egg industry has been slowly moving toward owner-integrated operations. Any expansion which occurs will take the form of closely knit contract production units or owner-integrated operations. In the owner-integrated operations grading and packing of eggs and feed mixing will be done on the farm.

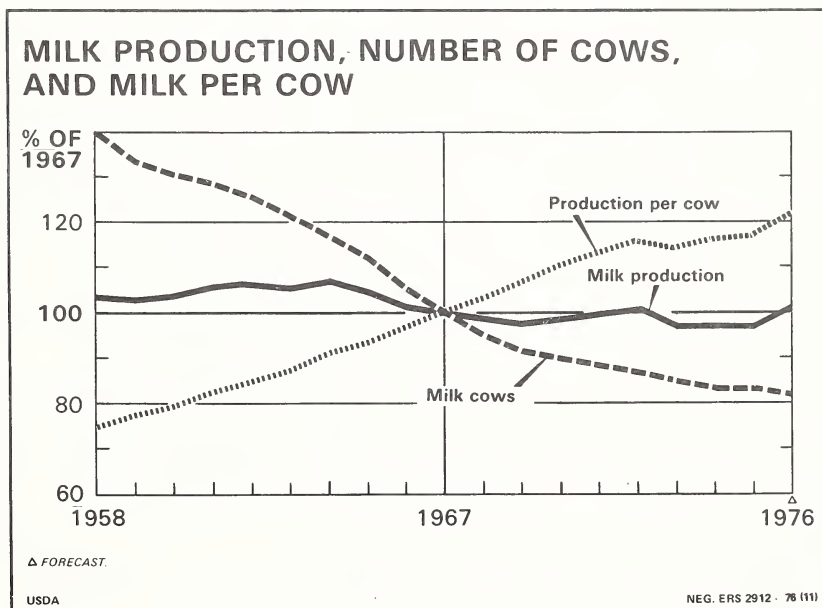
## OUTLOOK FOR DAIRY

(By Charles N. Shaw, Agricultural Economist, Economic Research Service, USDA)

Possibly the best word to describe the dairy situation in 1976 is "up". After 3 years of virtually unchanged milk output, milk production should post the sharpest year-to-year gain since 1953 and likely will total close to 120 billion pounds. However, sales of dairy products also rose sharply and probably will reach record levels. As a result, milk prices have been well above support since mid-1975 and likely will average about \$1 per hundred pounds higher this year than last. However, market conditions have weakened and the potential for surplus conditions in 1977 is large.

### MILK PRODUCTION HEAVY

Milk production, which moved above year-earlier levels in October 1975, has continued to increase strongly throughout 1976. Most of the impetus for increased milk production has come from heavier concentrate feeding which began in late summer of 1975. Dairymen may also be more fully realizing gains from the past few years in genetic potential. These factors have combined to yield rapid increases in output per cow throughout the year.

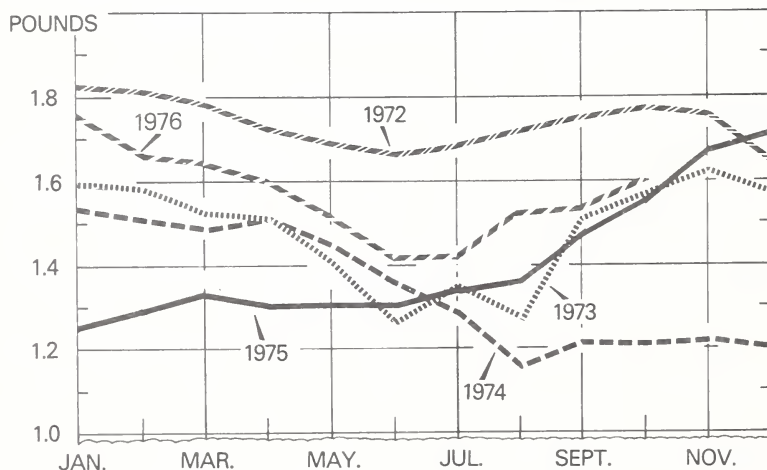


The decline from a year earlier in milk cow numbers has remained very close to 1 percent thus far in 1976, despite considerably higher cull cow prices during most of this period. The decline in cow numbers has been slowed by the relatively favorable conditions for milk production and the continued large numbers of heifers entering the milking herd. The slow decline in cow numbers this year followed an even slower decline in 1975.

Milk production in July–September was about 5½ percent above a year earlier, following an increase of about 3 percent during the first half of the year. Increased output was widespread, as all regions except the Mountain region registered gains. The increases during July–September were largest in the Lake States. The drought and resulting tight roughage supplies in Minnesota and Wisconsin had not yet exerted any downward pressure on milk production. However, dairy-men in those States have had to feed large amounts of harvested forage that ordinarily would be part of their fall and winter supplies. While this forage probably was better quality than could have been obtained from normal pastures, the major impact may be felt during the barn feeding season.

Farmers fed about 4 percent more concentrates on October 1 this year, than in 1975. Dairy ration costs were above a year ago in October and, due to expected higher prices for soybean meal, likely will average slightly higher than a year earlier during the barn feeding season. Coupled with expected lower milk prices, milk-feed price relationships likely will be less favorable during the first half of 1977 than in early 1976. The milk-feed price ratio stood at 1.6 in October, up just slightly from last year.

### MILK-FEED PRICE RATIO \*



\* POUNDS OF CONCENTRATE RATION EQUAL IN VALUE TO ONE POUND OF MILK SOLD TO PLANTS.



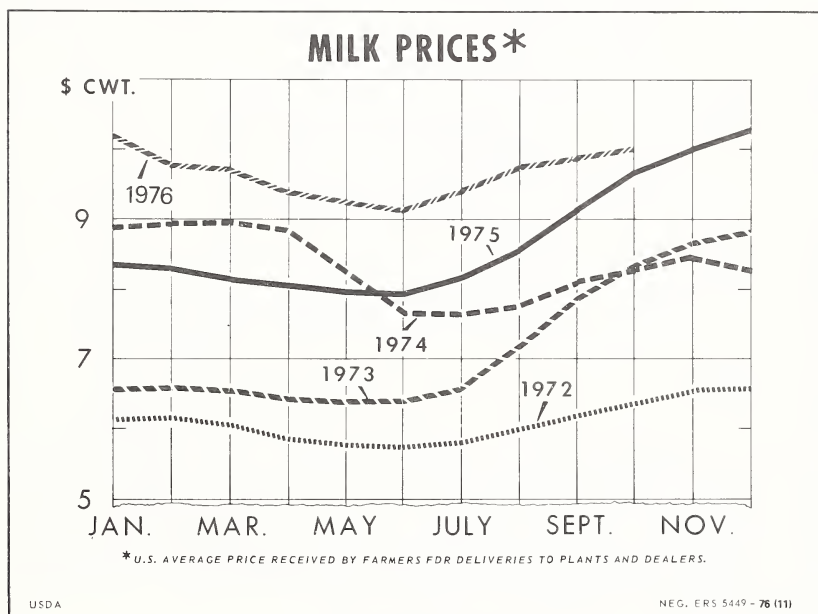
## MORE MILK LIKELY IN EARLY 1977

Milk production likely will remain above year-earlier levels in early 1977, although the rate of gain likely will slacken when compared with this year's rapidly increasing output. Continued strong gains in output per cow probably will more than offset moderate declines in cow numbers.

Milk production later in 1977 will depend on milk prices, cull cow prices, crop conditions and subsequent feed prices, and developments in the general economy. The greatest uncertainty is whether or not the expected lower milk prices and the return to surplus conditions in the dairy industry will substantially slow the increases in milk output. If dairymen continue heavy concentrate feeding and the declines in milk cow numbers stay very small, milk production would post strong gains throughout 1977. On the other hand, larger drops in cow numbers or limited feeding could pull milk output down to year-earlier levels by late 1977. But all factors considered, milk production in 1977 likely will show an increase of 1-2 percent.

## DAIRY PRICES STRONG IN 1976

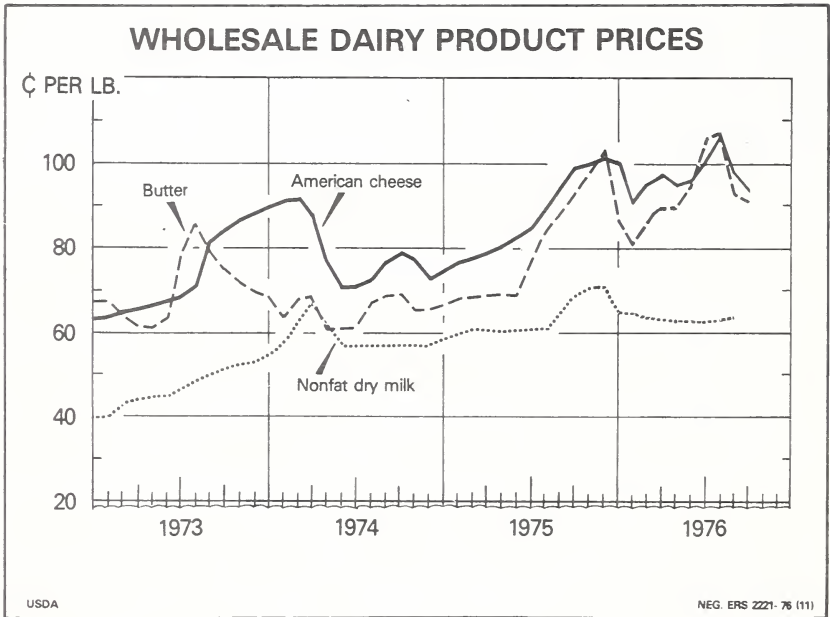
Farm milk prices were quite strong this year as most of the increased milk output was absorbed by brisk sales and the needed rebuilding of commercial dairy stocks. Recently however, the surge in supplies and dropping wholesale prices have sharply limited seasonal rises in farm milk prices. Farmers received an average \$10.00 per 100 pounds of milk in October, up 89 cents from June but only 30



cents from a year ago. Manufacturing milk prices were only about 36 cents above the new \$8.26 support level, when adjusted to annual average fat test. Although farm milk prices probably will close out the year below a year ago, milk prices for all of 1976 likely will average close to \$9.70, up 95 cents from 1975. Total cash receipts from dairying could reach \$11.4 billion, up from \$9.9 billion last year.

With the expected heavy supplies, farm milk prices in early 1977 could average well below a year earlier, even if demand stays strong. Prices later in the year will depend on milk production, commercial sales of dairy products, and support price actions, but the average for all of 1977 could be below 1976, the first annual decline since the 1950's.

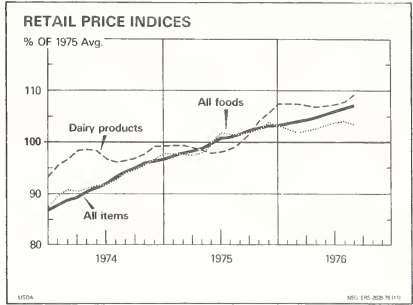
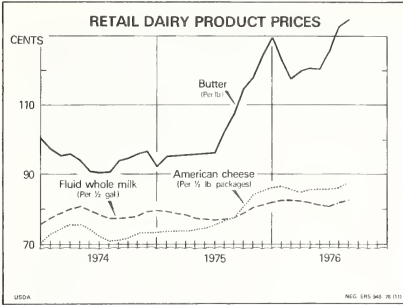
After rising quite rapidly in early summer and falling just as rapidly in late summer-early fall, wholesale butter and cheese prices are now close to the new support purchase prices. Although some small rises might occur during the peak holiday demand period, it is unlikely that substantial price increases will occur in the next few months.



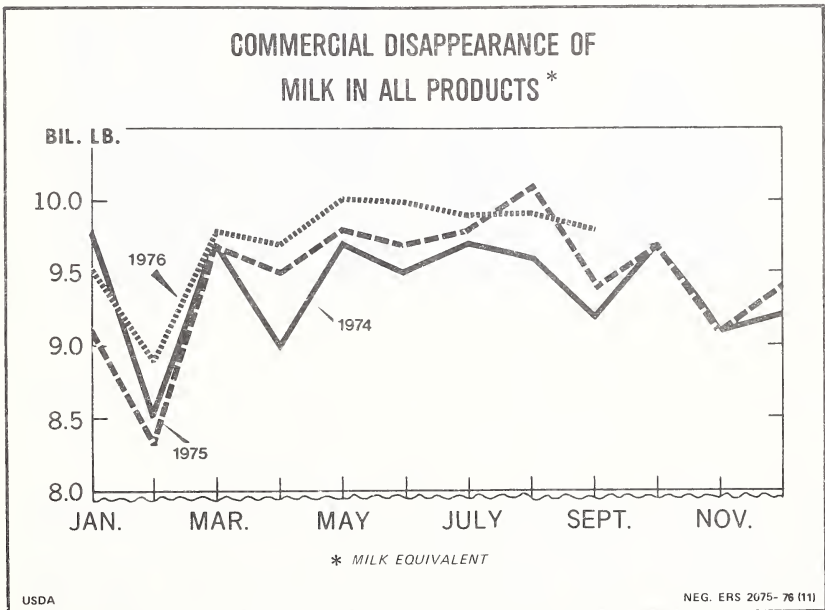
The very rapid increases in retail dairy prices in late 1975 left retail prices at a fairly high plateau in 1976. Although relatively stable since January, dairy prices at retail likely will average about 8 percent above 1975. However, the increases from a year earlier probably will be quite small by early 1977 and the average for all of next year likely will be only slightly above this year.

#### DAIRY SALES UP

One of the more dramatic developments in 1976 was a substantial expansion in the demand for dairy products. Despite the much higher retail prices, total dairy sales this year could be up 2 percent from last



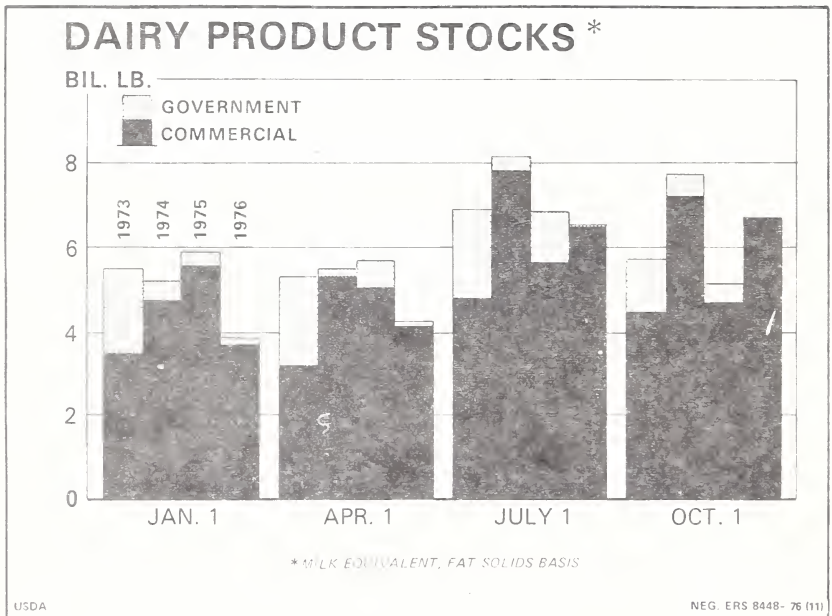
year and a record high. Booming cheese sales have provided much of the strength in total sales. During the first 9 months of 1976, commercial disappearance of American cheese was up 11 percent from 1975 and other cheese sales posted a similar gain. Fluid milk sales were slightly above last year's fairly strong levels. Although well below the brisk sales of 1975, butter sales in January–September were above the 1970–74 average. Sales of ice cream did not match last year's high level but commercial disappearance of nonfat dry milk rebounded. Generally stable retail prices may well allow dairy sales to increase again next year, although a repeat of 1976's large jump is not expected. Cheese sales probably will be helped by continued rises in consumer purchasing power and expected increases in meat prices. Commercial disappearance of butter could be about the same to slightly lower, as the difference between retail butter and margarine prices probably will stay wide. Gains in lowfat milks may about offset declines in fluid whole milk.



Per capita civilian consumption of dairy products in 1976 could be only slightly higher than 1975's 546 pounds milk equivalent. The sizeable increase in sales per person this year was largely offset by lower Government donations. With the expected larger CCC supplies available for donation next year, per person use of milk could post a significant increase.

#### COMMERCIAL DAIRY STOCKS LARGE

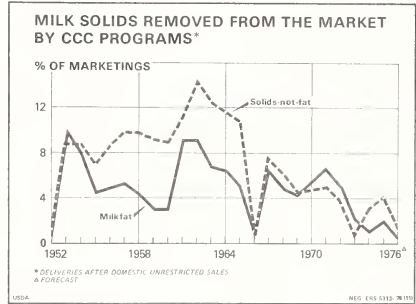
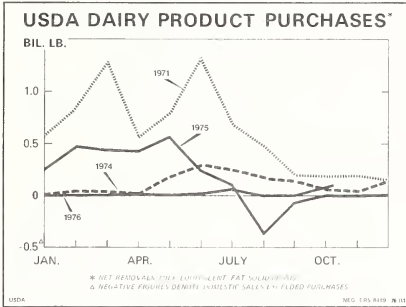
After being quite low in early 1976, commercial dairy stocks have risen sharply and are now verging on being burdensome. On October 1, commercial holdings were up more than 40 percent from last year's low level. With the large jumps in output, commercial stocks of American cheese were the second highest of any October 1 on record after increasing counter-seasonally during September. Butter stocks in commercial hands were also fairly large, although they dropped considerably in September. Manufacturers' stocks of nonfat dry milk remained heavy in relationship to the reduced level of sales. Government holdings on October 1 were negligible except for the still-large stocks of nonfat dry milk.



#### USDA REMOVALS SMALL

USDA purchases of butter and cheese have been almost insignificant this year. The equivalent of only a quarter billion pounds of milk was removed during the first 10 months of 1976, compared with 2 billion pounds a year earlier. However, this picture is changing rapidly and net removals in October were the largest this year, as all three products were purchased. The 120-million pound net removals of nonfat dry milk during January–October were substantial but were

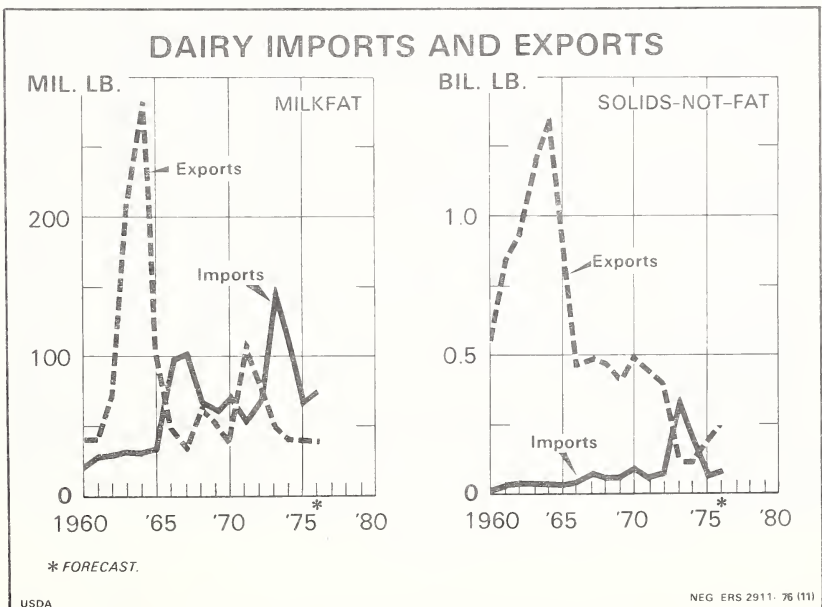
less than a third the amount removed during the corresponding period in 1975. CCC purchases are likely to be heavy in early 1977. Increased milk output combined with large commercial dairy stocks may easily outstrip demand.



### IMPORTS UP SLIGHTLY

January–September imports this year were somewhat above 1975's low levels as cheese imports returned to levels typical of the early 1970's. About 1.2 billion pounds milk equivalent were imported in the first 9 months of this year, up from 0.9 billion pounds a year ago. The strong market for cheese resulted in somewhat larger imports of both quota and non-quota cheese, despite price rises resulting from the various countervailing duty agreements with European countries.

Commercial exports of dairy products remained small this year. However, substantial amounts of nonfat dry milk have been donated under the Food for Peace Program. These export donations are expected to continue through at least the first three quarters of 1977.





## SUMMARY

Milk production likely will continue above year-earlier levels in early 1977 as gains in output per cow more than offset moderate declines in cow numbers. Although the rate of increase likely will slow when compared with this year's rapidly increasing output, total milk production in 1977 could show an increase of 1-2 percent over 1976 totals.

With stocks rebuilt, production increasing, and Government removals larger, farm milk prices in 1977 could average lower than this year even if demand for dairy products remains strong.

TABLE 1.—DAIRY SUMMARY, 1974-76

Item	Unit	1974	1975	1976	Percent change, 1975-76
<b>Annual:<sup>1</sup></b>					
Milk production.....	Billion pounds.....	115.6	115.5	119.8	+3.7
Milk per cow.....	Pounds.....	10,300	10,354	10,840	+4.7
Number of cows.....	Thousands.....	11,219	11,151	11,055	-.9
Milk prices received by farmers.....	Dollars per hundredweight.....	8.33	8.75	9.70	+10.9
Manufacturing grade.....	do.....	7.13	7.63	8.60	+12.7
Cash receipts.....	Million dollars.....	9,445	9,866	11,400	+15.5
Value of dairy rations.....	Dollars per hundredweight.....	6.23	6.25	6.20	-.8
Milk-feed price ratio.....	Pounds.....	1.34	1.40	1.56	+11.4
Utility cow prices, Omaha.....	Dollars per hundredweight.....	25.56	21.09	25.50	+20.9
<b>January to October:</b>					
<b>Wholesale prices:</b>					
Butter (Chicago, grade A).....	Cents per pound.....	65.4	75.2	92.3	+22.7
American cheese (Wisconsin assembling points, 40-lb. blocks).....	do.....	80.8	83.8	97.0	+15.8
Nonfat dry milk (manufacturers' average), <sup>2</sup> .....	do.....	59.1	61.1	63.5	+3.9
Dairy products (BLS) <sup>2</sup> .....	1967=100.....	146.3	151.6	168.4	+11.1
<b>USDA net removals:</b>					
Butter.....	Million pounds.....	33.7	63.4	5.2	-91.8
American cheese.....	do.....	41.7	68.2	11.3	-83.4
Nonfat dry milk.....	do.....	208.6	402.6	119.3	-70.4
Evaporated milk.....	do.....	25.0	21.7	18.9	-12.9
Milk equivalent.....	do.....	1,175	2,030	261	-87.1
<b>January to September:</b>					
<b>Retail prices (BLS):</b>					
All foods.....	1967=100.....	159.7	174.0	180.6	+3.8
Dairy products.....	1967=100.....	151.4	154.7	168.4	+8.9
<b>Manufactured products output:</b>					
Butter.....	Million pounds.....	734.2	764.2	736.5	-3.6
American cheese.....	do.....	1,491.6	1,284.2	1,586.7	+23.6
Other cheese.....	do.....	801.7	856.1	957.2	+11.8
Nonfat dry milk.....	do.....	830.5	832.1	748.7	-10.0
Canned milk.....	do.....	835.5	739.8	748.2	+1.1
Cottage cheese.....	do.....	657.6	664.1	683.8	+3.0
Ice cream.....	Million gallons.....	611.4	652.9	636.1	-2.6
Ice milk.....	do.....	241.7	240.2	229.8	-4.3
Imports of dairy products: Total milk equivalent.....	Million pounds.....	2,278	948	1,212	+27.8
<b>Commercial disappearance:</b>					
Total milk.....	Million pounds.....	84,919	85,549	87,498	+2.3
Butter.....	do.....	652.3	711.3	678.0	-4.7
American cheese.....	do.....	1,383.1	1,283.9	1,428.7	+11.3
Other cheese.....	do.....	937.5	965.2	1,068.8	+10.7
Canned milk.....	do.....	730.7	702.6	661.3	-5.9
Nonfat dry milk.....	do.....	671.1	512.5	581.8	+13.5
Cottage cheese.....	do.....	657.6	664.1	683.8	+3.0
Ice cream.....	Million gallons.....	611.4	652.9	636.1	-2.6
Ice milk.....	do.....	241.7	240.2	229.8	-4.3
<b>Average daily sales in urban markets:<sup>3</sup></b>					
Fluid whole milk.....	do.....				-2.6
Fluid low-fat milk.....	do.....				+6.9
Cream and cream mixtures.....	do.....				+4.7
Total fluid products.....	do.....				+1.5

<sup>1</sup> 1976 estimated.<sup>2</sup> January to September.<sup>3</sup> January to August.

## OUTLOOK FOR TIMBER PRODUCTS

(By Robert B. Phelps, Forest Economics and Marketing Research Staff,  
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Few timber products are consumed by individuals in the form in which they are manufactured. Instead, most move to various major markets where they are remanufactured or made a part of a product that is ultimately used by individual consumers. Thus, although consumer demand is the underlying force, direct demand for timber products is largely determined by the levels of activity in their primary end-use markets. So before discussing demand for the various products, I will briefly review trends in these markets and take a look at current estimates of their strength this year and early in 1977.

### DOMESTIC MARKETS

Economic activity in most of the major domestic timber products markets has been increasing in 1976. The general outlook for the remainder of the year and in early 1977 is for continued improvement as the economy continues to recover from the cyclical downturn of 1974 and early 1975.

A key determinant in the demand for many timber products is construction activity, and most particularly, residential construction activity. As most of you know, housing is the Nation's most important market for softwood lumber and plywood, and a major consumer of many other timber products such as hardwood plywood, particleboard, and insulation board. In 1975, starts of new housing units dropped to 1.17 million units. This was some 13 percent less than in 1974, and the smallest yearly total since just after World War II. The lowest monthly construction rates were early in the first quarter, however, and in the past year and a half housing construction has been slowly improving. Preliminary data indicate that the seasonally adjusted annual rate of new housing starts during the first three quarters of 1976 was just under 1.5 million units. This represented an increase of more than a third from the similar period in 1975. Over three-fourths of the units started so far in 1976 have been single-family homes. This, of course, has special significance for the timber industries because wood products use in those units is normally much larger than in other types of housing.

Building permits, an indicator of future starts, also have been trending up. Through the first 9 months of the year, about 940,000 permits were issued, over a third more than in the same period in 1975. These too, have been heavily weighted toward single-family units.

Shipments of mobile homes, a type of dwelling that many families have turned to in recent years as housing costs have increased, also were sharply down in 1975, again with the smallest volumes early in the year. In 1976, there have been fluctuations, however, though September shipments were about a fourth above year-earlier levels.

The gradual improvement in the housing situation has resulted from a number of factors including increasing personal income, rising flows of funds into the principal mortgage lending institutions, and gradually returning consumer confidence in the economy. Most analysts feel that these forces will continue to stimulate housing in the last quarter of 1976, but that the increase in activity will be slow because of high mortgage interest rates and housing costs. These last two factors plus fluctuations in the rate of starts in the second quarter caused some economists to make downward revisions in their earlier estimates of starts for the year. However, recent changes in the interest rates plus the increases in starts and permits late in the fall have caused a more optimistic outlook.

Based on trends for the year and the factors cited above, most housing analysts now expect that starts for 1976 will total around 1.5 million units, some 28 percent above starts in 1975. They also expect that over three-fourths will be single-family units. As a consequence, 1976 will likely be the second best year on record for one-family construction, surpassed only by 1972 when over 1.3 million such units were started. Additional slow improvement in 1977 should increase starts to about 1.7 million. A somewhat larger proportion of this total is expected to be in multifamily structures. Shipments of mobile homes, likely to total about 250,000 units in 1976 if current trends continue, should also increase, rising to over 300,000 in 1977.

Expenditures for residential upkeep and improvements have been rising sharply in 1976 as many homeowners apparently met their needs for additional space by alterations and remodeling rather than purchase of new homes. Expenditures in the second quarter of the year were at a seasonally adjusted annual rate of \$31.6 billion, some 6 percent above the first quarter expenditure level, and 26 percent more than in the second quarter of 1975. This upward trend can probably be expected to continue.

In contrast to housing, private nonresidential construction activity (measured in 1967 dollars) fluctuated but showed little trend in the first three quarters of 1976. However, surveys of anticipated expenditures for new plant and equipment and analyses by building and construction economists indicate that there will probably be some increase in the latter part of the year and in 1977. Business investment in plant and facilities should continue up as the general economy improves and the level of capacity utilization continues to rise.

Construction financed by Federal, State, and local governments is down somewhat in 1976 although there have been rather large month-to-month fluctuations. Some analysts feel that demand for additional public utilities could increase in 1977 if housing activity reaches the levels indicated above.

Production of furniture and fixtures—an important market for hardwood lumber, plywood, and veneer, particleboard and hard-

board—at the end of the first 8 months of 1976 was about 13 percent above 1975. The trend in furniture and fixtures output was presumably, in part, due to the rise in housing construction. Thus, the outlook for housing indicates a possible further rise in the months ahead.

Industrial production—an important indicator of the demand for pallet lumber, container board, and some grades of paper—has been slowly rising in 1976. Container production, an important market for paperboard, hardboard, veneer, and some grades of lumber, has followed the same trend. The demand for railroad ties, another important hardwood market, is also up. Further increases in these markets are likely if the economy continues to improve.

#### INTERNATIONAL MARKETS

The United States is the world's leading importer of timber products—chiefly lumber, woodpulp, and paper and board from Canada and veneer and plywood from Southeast Asia. The total value of these imports in 1975 was \$4.1 billion or about 4 percent of the value of all U.S. imports. In terms of roundwood equivalent, about a fifth of our apparent consumption of timber products have been imported in most recent years.

The United States is also a major timber products exporter. In 1975, the total value of timber product exports was also \$4.1 billion. Although we ship a variety of wood products to many countries, our principal export markets are Japan for softwood logs and lumber, pulp chips, woodpulp, and paper and board products, and Western Europe for woodpulp, paper and board products, and smaller amounts of lumber and plywood.

Although international demand for U.S. timber products grew rapidly in the early 1970's, it declined sharply in 1974 and 1975 as economic conditions slowed in the principal importing areas. In the Western European countries and in Japan, housing construction as well as consumer demand dropped. In both areas, timber product inventories rose to relatively high levels. It now appears, however, that the economic recessions in most of these countries reached bottom during 1975 and conditions have been improving in 1976. Current estimates indicate continuing, though slow, increases in domestic requirements in late 1976 and in 1977 for most of our European markets. Demand in Japan is likely to increase somewhat more rapidly because of the Japanese Government's announced intention to strengthen residential construction in the months ahead.

#### SOFTWOOD LUMBER

In response to the generally increased activity in its major markets, softwood lumber production through the first 8 months of 1976 has been much above the levels attained in 1975. For example, data published by the National Forest Products Association show that output through August was almost 17 percent above production in the similar period in 1975. Current expectations about housing and other markets in the final quarter of 1976 indicate that production will likely continue at the present pace and total about 29.4 billion board feet for the year, some 11 percent above 1975 (table 1).



Data from the first half of the year indicate that softwood lumber imports are likely to rise to about 7.0 billion board feet in 1976, nearly a fourth above 1975 shipments, but some 22 percent below 1972 and 1973. As has been true in recent years, nearly all of this will come from Canada. Exports are also expected to be up about 14 percent to 1.6 billion board feet.

Consumption of softwood lumber has followed the trends cited above for production—that is, a rather large increase over year-earlier levels. Some further rise is likely if housing continues to improve. Based on the estimates of production, imports, and exports discussed above, apparent consumption for 1976 (i.e., production plus imports minus exports) is estimated at 34.8 billion board feet—about 13 percent above 1975 but still some 10 percent under consumption in 1972 and 1973 when housing construction was at a peak. If housing construction reaches 1.7 million units in 1977 and the other major markets improve as discussed earlier, consumption is likely to rise above 1976 and reach the highest level since 1973. Production and trade are also expected to be somewhat higher.

Softwood lumber prices, which were down somewhat in 1975 when consumption was at relatively low levels, has been trending up in 1976 as consumption was slowly increasing. By October, the wholesale price index for all softwood lumber was 261.5 (1967=100) (table 2). This was about 18 percent above the index in January and 30 percent higher than the average for 1975. Data from trade sources indicate a small decline for some species in early November—however, some additional increase is likely if consumption continues up as outlined earlier.

#### HARDWOOD LUMBER

Although there has been rather sharp month-to-month fluctuations, production of hardwood lumber has also been trending up during 1976 in response to rising demand in major markets. Output through the first 8 months of the year was 19 percent above the January–August period in 1975, with some further increase likely as furniture and the other industrial markets continue to improve. Production is, therefore, expected to total 6.6 billion board feet for all of 1976, a fifth more than in 1975.

TABLE 1.—WOOD PRODUCTS PRODUCTION, CONSUMPTION, AND TRADE

[1974 and 1975 actual; 1976 and 1977 projections]

Product and year	Domestic production	Imports	Exports	Apparent consumption
Softwood lumber (billion board feet):				
1974.....	27.7	6.8	1.6	32.9
1975.....	26.5	5.7	1.4	30.8
1976.....	29.4	7.0	1.6	34.8
1977.....	30.6	8.0	1.7	36.9
Hardwood lumber (billion board feet):				
1974.....	6.9	.4	.2	7.1
1975.....	5.5	.2	.2	5.5
1976.....	6.6	.3	.2	6.7
1977.....	7.1	.4	.3	7.2
Softwood plywood (billion square feet, $\frac{3}{8}$ -in basis):				
1974.....	15.3	(1)	.5	14.8
1975.....	15.3	(1)	.8	14.5
1976.....	17.3	(1)	1.0	16.3
1977.....	18.3	(1)	1.0	17.3



TABLE 1.—WOOD PRODUCTS PRODUCTION, CONSUMPTION, AND TRADE—Continued

[1974 and 1975 actual; 1976 and 1977 projections]

Product and year	Domestic production	Imports	Exports	Apparent consumption
Hardwood plywood (billion square feet, $\frac{3}{8}$ -in basis):				
1974	1.6	1.7	.1	3.1
1975	1.2	1.9	.1	3.1
1976	1.4	2.4	.1	3.7
1977	1.6	2.5	.1	4.0
Particleboard (billion square feet, $\frac{3}{8}$ -in basis):				
1974	3.1	( <sup>1</sup> )	.1	3.0
1975	2.6	( <sup>1</sup> )	.1	2.5
1976	3.0	( <sup>1</sup> )	.1	2.9
1977	3.4	( <sup>1</sup> )	.1	3.3
Hardboard (million tons):				
1974	2.0	.3	.1	2.2
1975	1.8	.1	.1	1.9
1976	2.0	.2	.1	2.1
1977	2.2	.4	.1	2.5
Insulation board (million tons):				
1974	1.3	( <sup>2</sup> )	( <sup>2</sup> )	1.3
1975	1.2	( <sup>2</sup> )	( <sup>2</sup> )	1.2
1976	1.4	( <sup>2</sup> )	( <sup>2</sup> )	1.4
1977	1.5	( <sup>2</sup> )	( <sup>2</sup> )	1.5
Pulpwood (million cords):				
1974	81.8	.9	2.9	80.0
1975	69.3	.7	2.5	67.5
1976	81.5	1.0	3.0	79.5
1977	85.6	1.2	3.4	83.5

<sup>1</sup> Less than 50,000,000.<sup>2</sup> Less than 50,000.

Note: The projections presented for 1976 and 1977 are based on the trends in the major markets discussed in this paper and should not be viewed as forecasts of actual volumes. Data presented are subject to rounding.

TABLE 2.—WHOLESALE PRICE INDEXES FOR SELECTED WOOD PRODUCTS

[1967=100]

Product	1974 annual	1975 annual	1976 October
Softwood lumber	211.4	200.6	261.5
Hardwood lumber	189.5	160.3	186.1
Softwood plywood	186.8	200.6	254.5
Hardwood plywood	130.2	119.5	123.7
Particleboard	97.1	90.0	97.2
Hardboard	117.4	117.7	135.8
Insulation board	133.9	144.0	164.9

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Wholesale prices and price indexes."

Imports during the first 8 months of 1976 have also been much above 1975. A continuation of this trend is expected in the last quarter and the total for the year is estimated at 300 million board feet. Hardwood lumber exports are expected to total about 200 million board feet.

Apparent consumption of hardwood lumber in 1976, based on the estimates of production and trade given above, should amount to 6.7 billion board feet, about 22 percent above 1975. Continued growth in the hardwood markets pointed out earlier, suggests a further increase in demand in 1977 and with some increase in both imports and exports, production is likely to rise to over 7.0 billion board feet.

Hardwood lumber prices, as measured by the wholesale price index, have been rising slowly in 1976, probably in response to the continuing slow increase in demand outlined above. Although prices in October were about 14 percent above those in January, they were only 16 per-

cent more than the average for 1975 and still somewhat under the peaks reached in late 1973 and early 1974. If demand continues to rise, prices may well continue to increase in the months ahead.

#### SOFTWOOD PLYWOOD

According to data published by the American Plywood Association, total production of softwood plywood in the first 8 months of 1976 was 12.5 billion square feet ( $\frac{3}{8}$ -inch basis). This is 6 percent above production in the comparable period in 1975 and undoubtedly reflects the returning strength in the major markets. Based on the likelihood of continued, though slow, increases in these markets, softwood plywood production for 1976 is estimated at 17.3 billion board feet, up about 13 percent from output in 1975.

Exports of softwood plywood, which have been slowly rising in recent years, have been continuing up in 1976 and are expected to total about 1 billion square feet. Imports will remain relatively insignificant.

Apparent consumption in 1976 is therefore estimated at 16.3 billion square feet, about 12 percent above 1975. Consumption has been slowly rising in recent months as the new housing, maintenance and improvement, and important manufacturing markets improved. A continuation of these trends in 1977 would likely cause demand for softwood plywood to rise to the highest level since 1973.

The wholesale price index indicates that softwood plywood prices rose sharply early in 1975. For the remainder of that year, prices remained relatively stable, however, with the increases in demand in 1976 they have shown about a 9 percent rise. If demand continues up as expected in the months ahead, somewhat higher prices can be expected.

#### HARDWOOD PLYWOOD

Hardwood plywood production, which dropped rapidly in 1975, has shown some recovery in 1976 as housing and manufacturing output has slowly improved. As a consequence, production for the year is expected to rise to about 1.4 billion square feet ( $\frac{3}{8}$ -inch basis).

Data for the first half of 1976 indicate that imports are likely to show an increase of about 26 percent to 2.4 billion square feet, the largest volume since 1973. Exports are expected to remain at the 1975 level of 0.1 billion.

Given these trends in production and trade, apparent consumption of hardwood plywood in 1976 is estimated at 3.7 billion square feet—about 19 percent above 1975. Increased consumption can be expected in 1977 if activity in housing starts, mobile home output, and furniture production continues up as outlined earlier.

Hardwood plywood prices, historically much less volatile than those for softwood plywood, have exhibited a small increase in the first 10 months of the year. Despite this rise, the wholesale price index in October was only 3.5 percent above the average in 1975 and somewhat below the average for 1974. The relative wholesale price index for hardwood plywood (a measure of its price relative to all other wholesale commodities) was 66.8 (1967=100), very probably near the all time low. Some increase in both current and relative prices can be expected in 1977 as demand in the major markets increase.

## PARTICLEBOARD

Particleboard production in 1976 is expected to be up 15 percent to 3.0 billion square feet ( $\frac{3}{4}$ -inch basis). Data for the first half of the year suggest that exports are likely to remain unchanged at 0.1 billion square feet. Imports are relatively insignificant. Consumption is, thus, estimated at 2.9 billion square feet, about 16 percent above 1975. These increases are primarily a reflection of the situation in housing—the market for large volumes of particleboard used for underlayment under carpeting and for subflooring in mobile homes—and in furniture manufacture. Expected increases in these and in other manufacturing should stimulate demand in 1977. Particleboard prices might also be expected to increase from their current low levels as demand rises.

## HARDBOARD AND INSULATION BOARD

Hardboard production in 1976 is estimated at about 2.0 million tons (about 6 billion square feet,  $\frac{1}{8}$ -inch basis), 11 percent above 1975. Imports are expected to rise to 0.2 million tons, while exports remain at 0.1 million. Consumption with these estimates of production and trade would amount to 2.1 million tons (approximately 6.2 billion square feet,  $\frac{1}{8}$ -inch basis), also up 11 percent from 1975.

Data for the first half of 1976 indicate that insulation board production for the year will total about 1.4 million tons (3.4 billion square feet,  $\frac{1}{2}$ -inch basis)—17 percent higher than in 1975. Imports and exports are expected to be under 0.1 million tons, substantially so in the case of imports. Consumption, therefore, is estimated at 1.2 million tons, also 17 percent above 1975.

If housing and manufacturing output continue up in the months ahead as outlined earlier, both the demand and the price for hardboard and insulation board can be expected to increase.

## PULPWOOD

According to data from the American Paper Institute, production of paper and paperboard in the first three quarters of 1976 was at an annual rate of more than 61 million tons, 16 percent above production in 1975 and not far under the historic high reached in 1973. As a consequence, production of woodpulp—which currently constitutes about 78 percent of the raw materials consumed in U.S. paper and board mills—rose sharply, as did the volume of pulpwood used for its production. Although industry data indicate that paper and board production has shown some recent decline, woodpulp and pulpwood production are likely to remain at relatively high levels for the remainder of the year. Based on these various factors, pulpwood production (roundwood and chips) for 1976 is estimated at 81.5 million cords, 18 percent above 1975 and near the high reached in 1974.

Imports of pulpwood are expected to total about 1.0 million cords and exports approximately 3.0 million. These volumes are, respectively, about 40 percent and 20 percent above 1975. The rise in exports reflects a sizable increase in chip exports.

Pulpwood consumption in 1976, given the above estimates of production and trade, amounts to about 79.5 million cords, some 18 per-

cent above 1975. Prospective increases in economic activity suggest that the upward trends in pulpwood production, consumption, and trade will continue in 1977.

#### SOFTWOOD LOGS

Softwood log exports through the first three quarters of 1976 amounted to about 2.3 billion board feet, the bulk of these shipments going to Japan. Economic conditions in that country, particularly in the housing industry, suggest that the level of demand is likely to remain high in the last quarter of the year. Exports for 1976 have, therefore, been estimated at 2.9 billion board feet—about 12 percent above shipments in 1975. Some further increase in 1977 is probable. Imports of softwood logs have been declining in recent years and are not expected to be significant in 1976 or 1977.

#### HARDWOOD LOGS

Hardwood log exports in 1976 are estimated at 50 million board feet. Although the volume is small, most of the hardwood logs exported in 1976, and in recent years, have been walnut and other preferred species that are in short supply in the United States. These exports have, thus, been an important contributing factor to the large increases in stumpage and log prices for these species.

Hardwood log imports have been dropping rather steadily since the mid-1950's. This trend is continuing in 1976, and imports are expected to be less than 10 million board feet.

#### SUMMARY

Given the trends for the various products discussed earlier, U.S. production of industrial roundwood products (i.e., the round timber equivalent of all products except fuelwood) is likely to rise to about 11.3 billion cubic feet in 1976. At this level, total timber products output would be about 14 percent above 1975.

Total imports, including the pulpwood equivalent of pulp, paper, and board, is likely to increase to about 2.7 billion cubic feet, 22 percent above 1975. Exports are expected to be up some 20 percent to 1.7 billion.

With these levels of production and trade, total apparent consumption would be 12.3 billion cubic feet, about 1.6 billion above consumption in 1975.

Most recent forecasts indicate that new housing starts should reach 1.7 million units in 1977, and mobile homes, furniture, and other industrial production continue up. If activity in these markets does increase consumption, trade, production, and prices of most timber products are likely to continue the rising trends of recent months.

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## FAMILY LIVING

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## DEMOGRAPHIC PERSPECTIVES ON RECENT CHANGES IN THE AMERICAN FAMILY

(By David L. Brown, Sociologist, Economic Research Service, USDA)

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The structure of American society has undergone rapid and pervasive changes during the 20th century, and few institutions have changed more than the family. This paper focuses on changes in particular dimensions of family structure as they are described by socio-demographic indicators such as the amount and timing of family formation and childbearing, household size and living arrangements, marital stability, and the labor force status of married women. Moreover, it will be shown that these issues are interrelated and cannot be discussed as discrete topics in isolation from one another.

### SLOWDOWN IN MARRIAGE AND CHILDBEARING

Economic, political, and social conditions of the past 40 years have been accompanied by marked fluctuations in many respects of marriage and the family. For example, the economic gloom of the Great Depression occurred simultaneously with extremely low rates of marriage and childbearing . . . a near record 9 percent of women 50 years old during this period never married. The marriage rate began to rise early in World War II, declined somewhat during the War, and then increased substantially from 1946 through the mid-1950's, a period of relative stability in economic and political affairs. During the fifties, couples entered marriages at the youngest ages on record (average for males, 22.5 years; females, 20.1 years), and all but 4 percent of those at the height of the childbearing period eventually married (Glick, 1975).

Recently, the marriage rate has fallen to its lowest level since the end of the Depression. In 1975 the average age at marriage (males, 23.5 years; females, 21.1 years) was nearly a year higher than in the mid-1950's, and the proportion of women who remained single until they were 20 to 24 years old increased by one-third above the 28 percent single at these ages in 1960 (Figure 1) (U.S. Bureau of the Census, 1975). This recent downturn in marriage is associated with current economic conditions, but more importantly, it is connected with sociocultural changes in our attitudes regarding the permissibility of women's work outside of the home, the appropriateness of divorce as a means of resolving poor marriages, and the viability of alternative living arrangements to the traditional nuclear family for at least part of one's adult life. The determinants and consequences of these issues—marital disruption, labor force participation among

women, and the rise of the primary individual—are discussed in later sections of this paper, but first a few comments on the implications of the downturn in marriage for the level of childbearing in our society.

The family is part of the institutional structure through which a society replaces its population. It is the unit in which reproduction is authorized and expected, and consequently, changes in the marriage rate and/or the age at first marriage may affect a society's level of fertility. Hence, there is little question that recent declines in the marriage rate for young women in the United States have contributed to our low level of current fertility. In 1975 the birthrate fell to its lowest recorded level, 14.8 births per 1,000 population, a decline of 20 percent from its level of 18.4 births per 1,000 population just 5 years before in 1970 (U.S. National Center for Health Statistics, 1976). This low birthrate is reflected in the growth of American population between 1974 and 1975, 0.82 percent, one of the lowest rates of growth in any year since the Depression of the 1930's. However, the potential for growth currently exists. The number of persons in the prime childbearing ages is now quite large (a legacy of the post-War baby boom), and recent surveys of birth expectations indicate that young women still intend to have at least two births each (U.S. Bureau of the Census, 1976). Hence, if these persons actualize their preferences, we can expect the growth rate of the population to accelerate somewhat in the near future.

#### UPTURN IN DIVORCE

Accompanying the downturn in marriage has been an upturn in divorce (Figure 2). The number of divorces per 1,000 women under 45 years of age in the United States increased by two-thirds between the mid-1950's and 1970. Moreover, for the last 30 years, the proportion of women whose first marriage ended in divorce by a given period of life has gone up consistently. For example, the percent divorced by their early 30's has more than doubled from 6.3 percent in 1950 to 15.8 percent in 1970. Moreover, it has been estimated that between 25 and 29 percent of the women now in their late 20's will end their first marriage in divorce sometime during their life. This compares with only 12 percent for women now in their late 60's (Glick and Norton, 1973).

The rising level of divorce in our society has been a cause for substantial concern. It is one of the statistics most often cited by those who fear a breakdown in the American family. However, this belief is not shared by numerous observers of family trends, many of whom believe that divorce is an appropriate method of resolving a poor marriage. Indeed, this latter position tends to be shared by large segments of our population. Consider the case of those in public life. Not many years ago, the stigma attached to divorce was a heavy liability for candidates for public office. Today, the stigma appears to have diminished, a fact that tends to be supported by the marital histories of many of our highest level officials.

What factors are associated with the upturn in divorce? All other factors considered, low age at marriage is the basic determinant of marital disruption. Persons who marry before age 20 have substanti-

ally higher rates of marital disruption than those who marry at older ages.

What is it about young marriages that make them so susceptible to divorce? To begin with, a significant number of early marriages are precipitated by premarital pregnancy. Also, many persons who marry young have a low level of formal education. However, recent research has shown that the lower stability of early marriages is not due simply to their association with low education or premarital pregnancy. Young age at marriage, in and of itself, has an independent effect on divorce. To the extent that role patterns are tentative in the late teens and tend to stabilize with increasing age, postmarriage divergence in the spouses' expectations may be more likely for young marriages (Bumpass and Sweet, 1973).

Homogamy, the similarity between spouses in significant social characteristics, has also been shown to affect the probability of divorce. Higher instability was found for couples divergent in age or religion, while only extreme differences in education were associated with marital disruption. The greater probability of success for homogamous marriage is usually attributed to the greater likelihood of value consensus between spouses in basic life goals and priorities and to similarity of expectations for marital roles (Bumpass and Sweet, 1973).

In addition, recent increases in divorce appear to be associated with a number of societal conditions: (a) the large number of men who lived apart from their wives while on military duty during the Vietnam War, (b) the low fertility rate among women of reproductive age (to the extent that the presence of young children inhibits divorce), and (c) increased employment opportunities for women. Liberalized divorce laws have also been pointed to as a factor in increased divorce, although some recent research casts doubt on this explanation (Schoen et al., 1975).

#### RACIAL DIFFERENCES IN MARITAL STABILITY

The Moynihan Report generated interest in the family structure of blacks in the United States. Moynihan argued that among blacks, particularly among those at lower socioeconomic levels, there was a trend away from family stability (U.S. Department of Labor, 1965). However, recent research by Farley and Hermalin (1971) demonstrates that, "Contrary to images which are sometimes portrayed, most black families are husband-wife families and the majority of black children live with both parents."

However, this is not to suggest that there are no racial differences in indicators of marital stability. The data indicate that in every case, a higher proportion of whites than blacks are in the status indicative of family stability. Moreover, among blacks, there has been an increase in the proportion of women who head families and a decline in the proportion of children who live with both parents (U.S. Bureau of the Census, 1974). It should be pointed out, however, that the effect of growing up in a disrupted family is not well understood at this time. A number of studies indicate that the effects on "life chances" are minimal compared with other factors such as discrimination in the labor market and the poor quality of formal education.

## INCREASED LABOR FORCE PARTICIPATION AMONG WOMEN

Recent expansions in the Nation's labor force have focused attention on the growing number of women in our labor supply. Since 1940 the labor force participation rate of women has increased from 13.8 percent to 39.6 percent. Moreover, the relationship between female labor force participation and the family life cycle has changed as well.

Figure 3 allows us to review the labor force participation of women during this century (Oppenheimer, 1973). In 1900, if the average woman worked at all during her lifetime, it was only for a brief period before marriage and childbearing. By 1940 the rates showed some changes in the degree of labor force participation, but the pattern by age was similar to that of 1900. Since 1940 significant changes have occurred in the age (and family life cycle) pattern of female employment. The 1950 Census showed a sharp increase over the 1940 Census in work rates for women aged 35 and over—those whose children, by and large, had reached school age. This pattern has persisted so that by 1970 between 49 and 54 percent of women in the 35–59 year age groups were in the labor force.

In addition, labor force participation of younger, married women, those with preschool children, has increased as well. In 1950 work for married women (husband present) in the 20–34 year age group was a rare occurrence. By 1970 work rates for women in these age groups approached 40 to 50 percent. Work is becoming an important and continuing part of women's lives, not just before they marry and start rearing children.

What factors are associated with the probability that women will participate in the labor force? Recent studies indicate that the probability of wife's work is increased by family economic pressure (as indexed by husband's income) and by wife's level of employability and earnings potential (as indexed by educational attainment and/or prior work experience) (Morgan et al., 1962 and 1966).

In addition, family composition has also been shown to affect labor force participation of married women. For example, Sweet (1970) demonstrated that employment status is associated with the number and ages of children and with the presence of other adults (besides the parents) in the household. He explains that family status constrains the employment of women in the following ways: (a) the older the youngest child, the lower the probability that a mother will regard her employment as an inappropriate activity; (b) the younger the youngest child and the more children there are, the more housework that needs to be performed (both routine housework and "mothering"); and (c) the younger the youngest child, the greater the difficulty in arranging satisfactory child care and the greater the probability that child care will be expensive and reduce the net economic benefit from employment. The presence of another adult (especially a relative) in the household is likely to moderate the inhibiting effects of child status on mother's work by facilitating reliable and inexpensive child care arrangements and by helping with household maintenance.

Thus, although there has been a marked decrease over time in the inhibiting effects of small children on mothers' work activity, the number and ages of children are still of extreme importance. Moreover,



numerous studies show that family size expectations are tied to expectations for careers and other nonfamily-oriented activities. Women who plan to hold paid employment plan to have smaller families than women who have no plans to enter the labor force (Waite and Stolzenberg, 1976). Female labor force participation is an important issue, in and of itself, but it is also important because it is both a determinant and consequence of other aspects of family structure such as age at marriage, divorce, and fertility.

#### DECLINE IN HOUSEHOLD SIZE

One of the most dramatic occurrences in American demographic history has been the decline in average household size . . . from 5.8 persons in 1790 to under 3 persons in 1974 (Figure 4). What factors account for this decline? Demographic changes in fertility and mortality have had a major impact. For example, declines in fertility reduced the number of very large household units while declines in mortality enlarged the number of very small units by increasing the time couples survive after their children have established their own households (the so-called "empty nest" stage in the family life cycle). As a result of these demographic processes, the proportion of small households (two to four persons) increased continuously from 1790 to 1950 from one-third to over two-thirds of all households. However, in 1950 the number of four-person households was still much greater than the proportion with only one member.

The continued fall in household size since 1950 is attributable to the growth of very small households (one to two persons). One-person households grew from 4-5 percent of all units in 1900 to over 19 percent in 1974 (U.S. Bureau of the Census, 1975). Are demographic forces the main determinants behind recent declines in household size as they were in declines through 1950? For example, has the increase in primary individuals (one-person households) come at the oldest ages, as one would predict from knowledge of the aging of the population which has characterized recent times? For males the answer is no. The total number of male primary individuals tripled between 1950 and 1974 while the number of young (20-34 years of age) primary individuals increased more than eightfold. Clearly, increases in living alone for men have come at an early stage in the life cycle and are associated with moving out of the parental home to college dormitories, military barracks, and most dramatically, to bachelor quarters.

In contrast, the aging of the population and the differential in mortality, which tends to favor older women over men, has been a key factor in enlarging the number of women who live alone. Of the 4.6 million increase in female primary individuals, between 1950 and 1974, 63 percent, or nearly 3 million women, were aged 55-74 years (Kobrin, 1976).

The data reviewed above suggested that the decline in household size has had a significant impact on the family as a social unit. The great increase in persons living separately from families and the concentration of these people at the youngest and oldest stages of the adult life cycle indicate that family membership has become much less continuous over the life cycle. If current trends continue, we may see the time

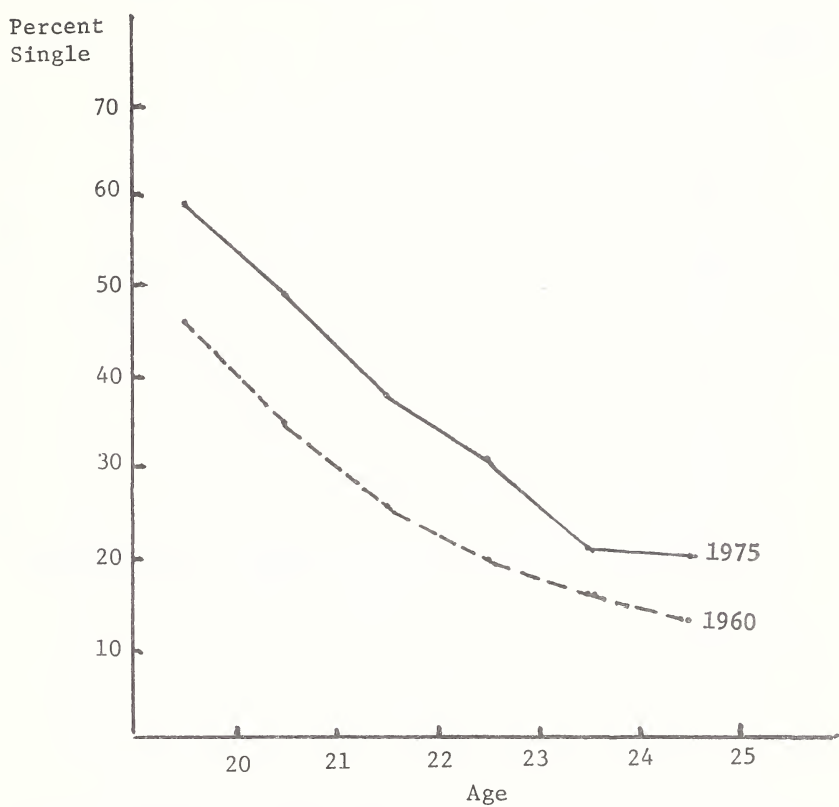
when perhaps less than a majority of adults will be living in families (73.5 percent lived in families in 1970). As Kobrin (1976) points out, this change must necessarily affect the relationships between generations and life cycle patterns of interaction generally.

#### CONCLUSIONS

Sociodemographic indicators have been used to describe changes in the structure and function of the American family during the 20th century. These changes have been pervasive, far reaching, and inter-related with one another. Decline in the marriage rate, for example, is a basic determinant of lower fertility, which in turn, is associated with women's labor force activity and with the recent upturn in divorce. Moreover, all of these changes have contributed to a consistent decline in the size of the American household.

If one inference can be drawn from these sociodemographic indicators, it is that family roles and patterns of family interaction have been modified substantially during recent decades. Nonfamilial activities appear to be of greater importance than in the past; the proportion of the life cycle spent outside of a family unit has increased significantly; child care is increasingly the responsibility of third parties; and the husband-wife relationship has become more egalitarian. Yet, with all this change, there appears to be permanence. Most people eventually marry, and most children are born and raised in husband-wife families. Indeed, viability of the family is even suggested in statistics on divorce. According to the latest information available, about four out of every five of those who obtain a divorce will eventually remarry (U.S. Bureau of the Census, 1972). Thus, the demographic data presented in this paper do not suggest a breakdown of the American family but, rather, significant modifications in its structure and function in contemporary society.

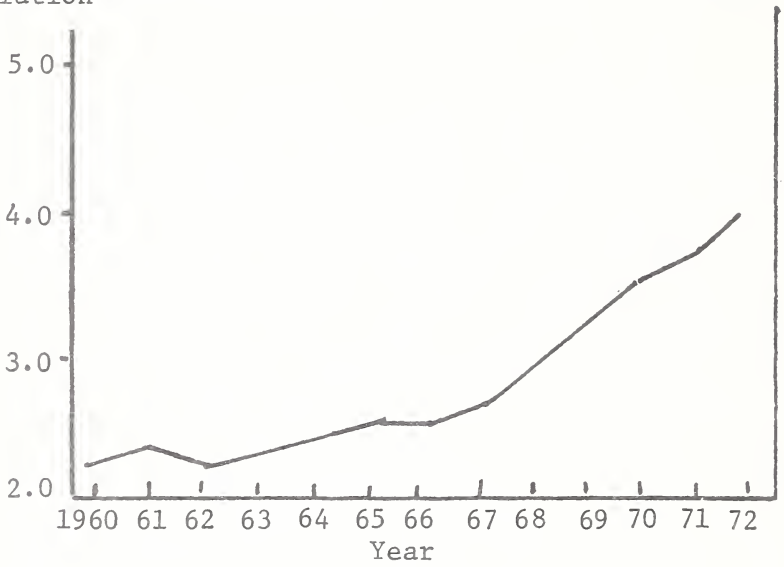
FIGURE 1.—Single Women in the Population by Age: 1960-1975



Source : U.S. Bureau of the Census 1975A.

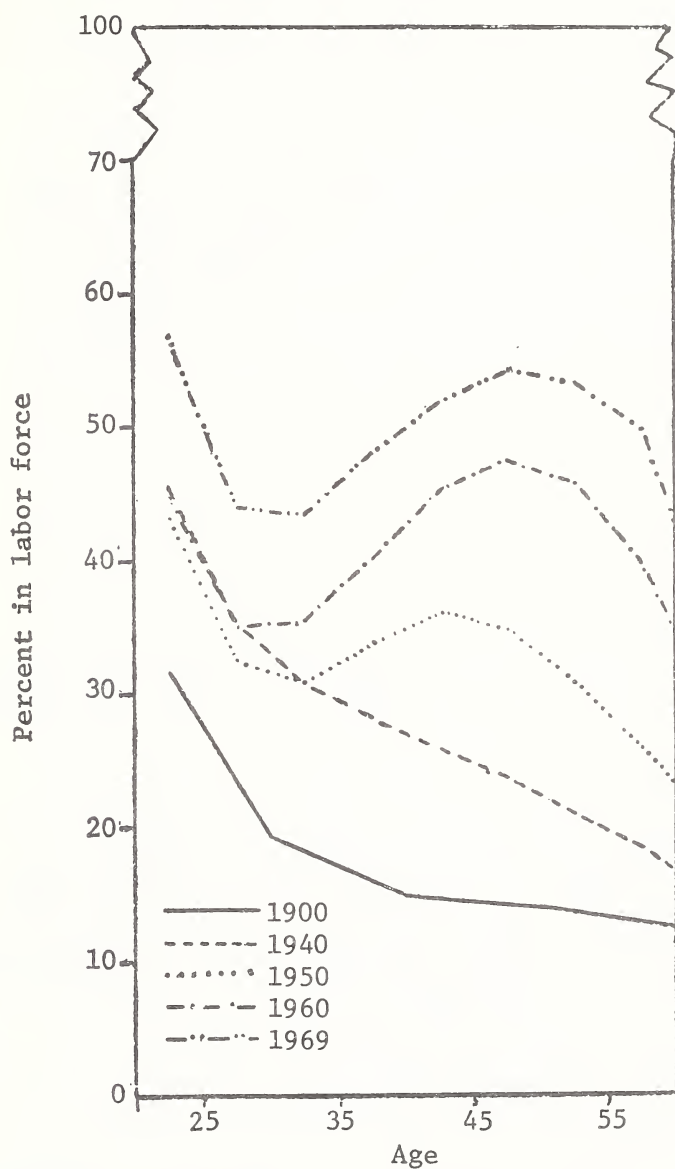
FIGURE 2.—Trend in Divorce—Annulment: 1960–1972

Rate/1,000  
population



Source: Schoen, et al., 1975.

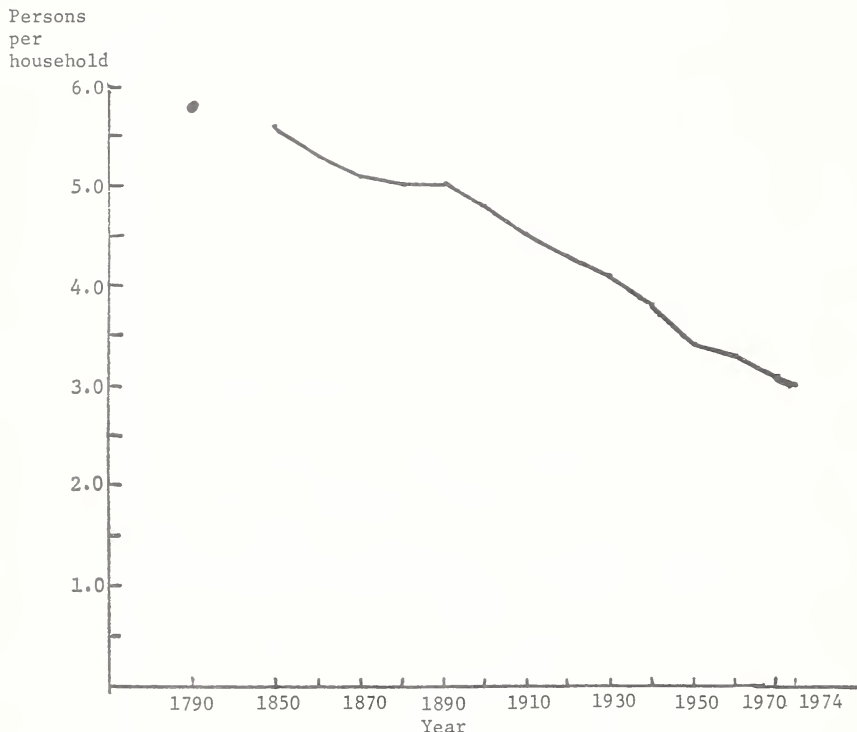
FIGURE 3.—Female Labor Force Participation by Age, 1900–1969



Source: Oppenheimer, 1973



FIGURE 4.—Population Per Household: 1970-1974



Source: U.S. Bureau of the Census 1975B and 1975.

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## ADULT PERFORMANCE LEVELS AND CONSUMER AFFAIRS

(By James T. Parker, Competency-based Adult Education Specialist,  
Division of Adult Education, USOE)

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Nearly 35 million adult Americans function with difficulty and an additional 39 million are functional, although not proficient, in coping with basic requirements that are related to consumer economics, James T. Parker of the U.S. Office of Education stated today at the National Agricultural Outlook Conference.

These findings emerged from a 5-year research project funded by the U.S. Office of Education and conducted by the University of Texas.

In the process, the Adult Performance Level (APL) Study has redefined the concept of functional literacy and has produced new estimates of the rate of illiteracy for the United States.

Parker explained that, according to the APL concept, functional literacy or competency is not simply the ability to read or write at some arbitrarily chosen low grade level. APL research defines functional literacy as the ability of an adult to apply skills to several major knowledge areas which are important to adult success. The skills, which have been identified as important to functional illiteracy, are the communication skills (reading, writing, speaking, and listening), computation, problem solving, and interpersonal relations. These skills are applied in everyday life situations, which are categorized into broad "general knowledge areas" called occupational knowledge, consumer economics, health community resources, and government and law.

Using this two-dimension concept, the project has defined 65 requirements for functional literacy. As a means of assessing how well American adults meet these requirements, five national surveys of American adults have been conducted. Using simulations of requirements keyed to the APL definition of literacy (such as reading job notices, making change, shopping, locating needed services, or understanding insurance), the APL project has developed a general index of literacy which classifies adults into one of three categories: APL 1—those adults who function only with difficulty because of their unsatisfactory mastery of the requirements for functional literacy; APL 2—those adults who are functional, but not proficient; and APL 3—those adults who are proficient.

These surveys indicate that almost one of five adults is in the APL 1, or nonfunctional category. Almost 23 million Americans lack the competencies necessary to function in society and an additional 33.9 million Americans are able to function, but not proficiently.

In terms of the general knowledge areas, the greatest area of difficulty appears to be Consumer Economics. Almost 30 percent of the population falls into the lowest level (APL 1), while one-third of the population is categorized as APL 2.

Here are some examples of the survey items:

Fourteen percent of the sample, when asked to fill out a check in a simulated business transaction, made an error so serious that it was unlikely that the check would have cleared the bank. Forty-four percent of those with eight years or fewer of school made serious errors in filling the check form, while only 7 percent of high school graduates and 6 percent of college graduates made similar errors.

When given pictures of three competing packaged cereals marked by net weight and price, only three out of four respondents identified the cereal which, in the sense of lowest cost per ounce, was the "best buy".

When presented with a receipt from a pharmacy containing a series of purchases and a total, of 72 percent of the sample calculated the correct amount of change due from a twenty dollar bill. Sixty-two percent of those with less than \$5,000 family income determined the correct amount of change, while 78 percent of those with \$15,000 or more did so.

The findings of this study was released to the public in October, 1975 at a national press conference. Since the completion of the study, Parker told conference delegates that the Division of Adult Education has conducted an extensive campaign to acquaint State and local program developers with the results of the study. In February the U.S. Office of Education sponsored a national conference of State Directors of Adult Education and other State and local personnel to promote new programs in response to the APL study findings. It was determined that more than two-thirds of the adult education State programs have identified APL-related competency education as a priority for special funding. To date, over 125 special programs have been initiated through the country.

The American College Testing (ACT) Program has received a contract authorizing revision of the national APL survey items for use at State and local programs level. This will facilitate statewide literacy assessments as well as school district and individual testing. Two tests are now available, one dealing with adult competencies, the other for use with high school students.

Parker noted that anyone desiring additional information on this research and related programs should write him at the Division of Adult Education, U.S. Office of Education, DHEW, Washington, D.C. 20202.

## DECADE FOR WOMEN AND DEVELOPMENT: IMPLICATIONS FOR U.S. WOMEN

(By Julia Chang Bloch, Minority Staff Director, Select Committee on Nutrition and Human Needs, U.S. Senate)

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International Women's Year, 1975, has come and gone, founding a Decade for Women and Development, 1976-1985. What does this mean for American women and for extension home economics? I will try to answer the question in my talk this morning. My task, however, has been made infinitely easier by Drs. Opal H. Mann and Frances M. Magrabi. As most of you know, Drs. Mann and Magrabi thoroughly discussed the implications of International Women's Year objectives to extension home economics and identified action items that have a direct bearing on extension programs in last year's National Agricultural Outlook Conference.<sup>1</sup> Their excellent work is as relevant today as it was in 1975.

One year, however, has passed since Drs. Mann and Magrabi gave their talk. In that year the 30th General Assembly of the United Nations extended International Women's Year into a Decade for Women and Development. Proclamation of the Decade is recognition that equality for women is unfinished business and that International Women's Year was only a beginning. The Decade will give both an impetus and a timetable to governments and United Nations agencies to carry out the World Plan of Action adopted by the World Conference of International Women's Year. The Decade will also provide a continuing international focus for issues of concern to women. In 1980, the midpoint of the Decade, a second international women's conference will be held to assess worldwide progress towards a better and more just society, envisioned by the World Plan of Action, where men and women are full partners in economic, social, and political life. Another product of the Decade will be an International Institute on Research and Training for the Advancement of Women. If adequately funded, the institute could be in operation as early as 1977.

In response to the International Women's Decade, the U.S. Congress extended the life of the National Commission on the Observance of International Women's Year to March 31, 1978. The Commission now has the mandate to organize and plan a series of State and Territorial women's conferences to be held throughout 1977, to be followed by a national conference no later than November 30, 1977. The conferences will focus on grassroots participation, making special efforts to include low-income, minority and ethnic women. The goals of the conferences will be to give recognition to the contributions of women

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<sup>1</sup> Speech delivered by Drs. Opal H. Mann and Frances M. Magrabi at the 1975 National Agricultural Outlook Conference.



to the development of our country; to assess the programs that the private and public sectors have made to date to promote equality between men and women in all aspects of American life; to identify the barriers that prevent women from participating fully in all aspects of national life; to develop recommendations for removing these barriers; and to establish timetables for the achievement of these objectives.<sup>2</sup> Through these conferences American women will have a unique opportunity to expand on the dialogues and processes begun at the International Women's Year Conference to make themselves heard, to share experiences, to form communication networks and to generate a national plan of action relevant to their needs.

As I see it, these conferences have particular relevance for extension home economics. "Focus II," the extension home economics program development publication directs program leaders to meet the challenge of offering services appropriate to needs created by changing conditions.<sup>3</sup> This mandate is not easy to fulfill. Extension home economics is probably the world's largest informal adult education system serving the homemaker, most of whom are women. Changes in women's role, therefore, carry enormous implications for extension programs. As evidenced by International Women's Year and, now, the Decade for Women and Development, the role of women around the world is changing and emerging as one of the most powerful forces for social reform in our time. If extension home economics intends to meet its objective of improving the quality of family living in the home and community, program leaders must keep pace with how the changing role and status of women in this country affect traditional family sex-role definitions and living patterns. The State and national women's conferences offer extension program leaders an opportunity to learn first hand what women around the country are thinking, doing and needing. They will also provide a soundingboard for program leaders to examine and reassess their programs and priorities.

To give all extension program leaders a head start on conference participation, I have compiled the following statistical portrait of the changing profile of women in the United States, using data made available because of International Women's Year:<sup>4</sup>

Women will continue to outnumber men, and in greater proportion, in the next quarter century. There are 109.4 million women in the United States today, representing 51.3 percent of the population. American women now outnumber men by 5.6 million and are expected to outnumber men by 6.9 to 7.9 million by the end of the century.

About three-fourths of all American women lived in urban areas in 1970 as compared with less than half in 1910. Only about 4 percent of American women were farm residents in 1970, down from 29 percent in 1920.

<sup>2</sup> Public Law 94-167.

<sup>3</sup> *FOCUS II*, Subcommittee on Home Economics of the Extension Committee on Organization and Policy, American Association of Land Grant Colleges and State Universities (1974).

<sup>4</sup> *1975 Handbook on Women Workers*, U.S. Department of Labor, Women's Bureau (1975) Employment Standards Administration. "To Form a More Perfect Union . . ." Report of the National Commission on the Observance of International Women's Year (1976). *National Inventory*, U.S. National Commission for UNESCO, (1976). *A Statistical Portrait of Women in the United States*, U.S. Department of Commerce, Bureau of the Census (1976).

The educational gap between men and women has narrowed, but equality has not been reached. Among persons 25 to 29 years of age in 1975 approximately 77 women had completed at least 4 years of college for every 100 men, compared to 66 women for every 100 men in 1950.

Since 1970, one in three marriages end in divorce.

A growing proportion of women are single, divorced, and not remarried. In 1975, almost 40 percent of women aged 20 to 24 were single, compared to 28 percent in 1950, and 6.8 percent of women divorcees aged 25 to 34 were not remarried in 1975 compared with 2.5 percent in 1950.

Families headed by women have increased by 73 percent since 1960 to 7.2 million. They now comprise 13 percent of all families.

American women today have fewer children than their mothers. More than 9 out of 10 married couples have practiced—or expect to practice—some form of contraception. The average American household size has decreased from 5 persons in 1910 to 2.97 persons today. Women under 30 increasingly favor the 2-child family.

Between 1950 and 1975, the number of women in the labor force nearly doubled, while the number of working men increased by one-fourth. The number of working wives rose from 25 percent in 1950 to 44 percent in 1975. Working mothers with children under age 6 have tripled from 12 percent in 1950 to about 37 percent in 1975.

Homemaking is still the occupational preference for most women. Approximately 57 percent of married women are engaged full time as homemakers.

The income differences between working men and women are substantial. In 1974, the median earnings of women was \$6,772 compared to \$11,835 for men. In both 1970 and 1974, the median income of women college graduates aged 25 and older who worked full time was only 60 percent of comparable male median incomes.

In 1974, female-headed families had median incomes which equaled 47 percent of median incomes for male-headed families, down from 56 percent in 1950. Almost 33 percent of female-headed families were below the poverty line in 1974, compared with 5.7 percent of male-headed families.

On the average American women can expect to live 75 years, outliving men by almost 8 years.

Women aged 65 and older have been a larger share of the female population in every decade since 1900. In 1975, 12 percent of the female population was in this age group, compared to 4 percent in 1900.

In 1975 less than 38 percent of women aged 65 and older were living with husbands. Approximately 53 percent were widowed, and 3 percent were divorced.

There is a steady increase in teenage pregnancies. About 1 million teenage girls, or 1 out of every 15 or 16 girls between the ages of 13 and 19, become pregnant. Teenagers account for more than half of all out-of-wedlock births and more than one-third of all abortions. The number of unmarried mothers who are 18 or younger has jumped 75 percent in the last 5 years.

This changing profile of American women suggests a number of special areas of concern for extension home economics:

First, it is obvious that traditional family roles and living patterns are changing. As the Market Opinion Research report commissioned by the National Commission on the Observance of International Women's Year found, "Today's young adult women are very unlike their grandmothers, though the break with their mothers is not as sharp. The trend is apparent toward a lifestyle in which women will play a larger role in the ranks of the employed and a more equal role in the division of responsibilities within the family. The move is toward a lifestyle in which women will share with men the provision of financial and emotional support of children and their physical care, and a lifestyle in which who supports the family or pays the alimony or obtains child custody if the family breaks up will depend upon who is best able to do so. The trend is also towards a lifestyle that provides more options for the woman who never marries."<sup>5</sup>

Extension home economics, therefore, ought to focus on helping individuals and family members adapt to changing functions and roles as an area of program emphasis.

Second, one of the most striking aspects of the role of women in American life today is the large number and proportion of women who work outside of their homes and the increasing strength of their commitment to the ranks of the employed. Two career families and children with working mothers are the wave of the future. Society, however, provides totally inadequate support systems to help these working women meet their dual responsibilities of running a household and holding down a job outside the home. There are few decent and accessible day-care programs. There is a scarcity of competent and trustworthy household help. There is no simple way to sensitize men to share childrearing and housekeeping responsibilities. There are too few jobs whose hours are adaptable to a mother's schedule.

A second area of program emphasis for extension home economics ought to be the development of realistic role models for two career families, focusing particularly on helping working wives and mothers cope with their dual responsibilities.

Third, the increasing number of single, widowed, divorced and separated women means that women need to earn their own living. Women, however, continue to be concentrated in low-paying clerical, operative and service positions. In 1973, for example, more than two-fifths of all women workers were employed in 10 occupations: Secretary, retail trade salesworker, bookkeeper, private household worker, elementary schoolteacher, waitress, typist, cashier, sewer and stitcher, and registered nurse.<sup>6</sup> If women are to have the capacity to support themselves adequately, their educational and occupational choices must be broadened.

Expanding the career and vocational choices of women into non-traditional fields makes an appropriate third area of program emphasis for extension home economics. There is a need to reduce the earnings gap between men and women. Particular emphasis is needed to eliminate sex role stereotyping in career and vocational counseling.

Fourth, divorces have become clearly a common feature of 20th century American life. As divorce rates go up, the economic impact of

<sup>5</sup> *Op. cit.*, National Commission on the Observance of International Women's Year, p. 108.

<sup>6</sup> *Ibid.*, p. 91.

divorce on women and children needs to be better understood. Data on divorce is inadequate. All available information, however, points to the conclusion that alimony is granted in only a very small percentage of cases, that fathers contribute less than half of the support of the children in divided families, and that the enforcement of alimony and child support payments is very inadequate.<sup>7</sup> A 1975 poll of 1,552 women conducted at the request of the National Commission on the Observance of International Women's Year confirmed this conclusion. It found that only 14 percent of divorced wives received alimony. Of the 14 percent, only 46 percent collected regularly. Of the 44 percent of divorced mothers who were awarded child support, 47 percent collected regularly.<sup>8</sup>

Extension home economics ought to focus on divorce as a fourth area of program emphasis. What is needed include marriage and divorce counseling services, information about the legal rights of wives and children at divorce, and solutions as to how wives and children might best cope with the economic hardships of divorce.

Fifth, since changing lifestyles, call upon women to be increasingly economically self-sufficient, full-time homemakers, the majority of American women, need to better understand their legal status. The women's movement interest in the civil and political status of women has exploded the myth that marriage means economic security for women. Homemakers without independent income are finding that property, inheritance, divorce, and support laws do not recognize their economic contributions to a marriage and do not give them legal rights to share in or manage earnings and property acquired in a marriage.

For example, the Homemaker Committee of the National Commission on the Observance of International Women's Year reports that at the death of the husband a widow must prove that she has contributed money to the purchase or improvement of the estate, if it is worth more than \$120,000, or face estate taxes. Whereas, when the wife dies first, the estate passes to the husband free of estate taxes. A homemaker's contribution to the family does not count, no matter how many years she has worked alongside her husband.<sup>9</sup> Social Security provides another example. If a wife who is a full-time homemaker is divorced after fewer than 20 years' marriage, she has no Social Security protection based on her husband's employment. If she has been married more than 20 years prior to the divorce, she is eligible for a benefit only when he retires or dies. Social Security laws recognize the wife only as an appendage of the husband.<sup>10</sup>

As a fifth area of program emphasis, extension home economics might well counsel homemakers on their legal standing under State and Federal laws pertinent to their interests. There is a need to promote the concept that a homemaker's contribution is equal in importance and value to the contribution of the spouse who works outside the home.

Sixth, American women can expect now to live close to three-quarters of a century. Women, therefore, need to pay greater atten-

<sup>7</sup> Citizens' Advisory Council on the Status of Women, "The Equal Rights Amendment and Alimony and Child Support Laws," Department of Labor, Women's Bureau, Washington, D.C.

<sup>8</sup> *Op. cit.*, National Commission on the Observance of International Women's Year, p. 16.

<sup>9</sup> *Ibid.*, p. 14.

<sup>10</sup> *Ibid.*, p. 15.



tion to how they intend to live their mature and older years. Too many women today find themselves without a central purpose in life after their children are born and reared. Divorce in the middle years is becoming more common. Many widows are left without adequate financial support. Elderly women make up a large proportion of people living below the poverty level. Most of these women, brought up at a time when tradition dictated that a woman's place was at home, are virtually unemployable. Those who are employable face often insurmountable problems of reentry into the work force.

Extension home economics ought to focus on the "displaced homemaker" as a sixth area of program emphasis. These women need continuing education opportunities to update or upgrade their skills, or, simply, to learn job skills that are marketable. They need job placement services to help them find a means of livelihood and to overcome problems in reentry into the work force.

Finally, teenage girls who are getting pregnant, having abortions and becoming unmarried mothers are increasing in epidemic numbers. Unplanned babies and marriages can have serious consequences for all concerned, particularly when the parties involved are children. Teenage parents are forced to take on adult responsibilities before they are ready to provide optimal care and support for their babies. Teenage mothers must often cut short their schooling, foreclosing the chance of their achieving their full potential as educated, active citizens. The tragedy is that so many teenage girls become pregnant because they have a faulty knowledge of reproduction. The Draper World Population Fund Report, "Mothers Too Soon," found that 40 percent of teenage girls who became pregnant believed that they could not conceive because they were too young or because they had infrequent intercourse.<sup>11</sup>

As a seventh area of program emphasis, extension home economics ought to meet the challenge of offering appropriate services to teenagers on family planning, parent education, and family life education.

Seven areas of program emphasis have been highlighted for your consideration as supplements to existing extension program development guides. I hope extension program leaders will find meaning and relevance in the suggestions not only for their programs but also for themselves. The women's movement has touched each and everyone of us, profoundly changing the lifestyles of millions of Americans. Central to the Decade for Women and Development in the United States is advocacy for the recognition of the achievements and needs of the individual. The Decade seeks greater flexibility, greater responsibility, and greater control for each woman over her own destiny. What is really at stake is a society where each person has an opportunity to develop to his or her own potential. Before such a society can become a reality, however, women will need to overcome enormous handicaps imposed by age-old traditions and conventional attitudes. Extension home economics, with its more than half a century of recognized achievement in improving the quality of life of Americans, has a responsibility to take up the challenge of the Decade. Knowing your record, I have no doubt that you will succeed.

<sup>11</sup> *Draper World Population Fund Report*, Phyllis T. Plotrow, Ph. D., editor, Population Crisis Committee (1976).



## IMPLICATIONS FOR CHANGING LIFE STYLES

(By Joyce E. Bisbee, Manager of Educational Relations, J. C. Penney Co., Inc.)

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There are many important implications for our consideration concerning the family life styles and social trends highlighted by our previous speakers.

By this time you are probably wondering how we can best direct the use of our knowledge for the support and benefit of all families.

In my role as catalyst for our thinking, I suggest we view these implications as the probable events that will happen in the future if the current trends continue without interruption.

Of course, we can't possibly know all of the implications of events in our lives. But we can take what we do know and project into the future some possible alternatives and their probable results.

By carefully looking at current trends we can identify opportunities for future program emphasis that will help lead to the futures we prefer.

I think we've heard enough data this morning to realize that the family is experiencing a period of change—deep change that is affecting basic attitudes and patterns of living. The change is evolutionary in nature but revolutionary in scope as more and more people are affected.

I have selected a few of the trends cited by our previous speakers and will concentrate on these as we consider implications for family life style.

Let's start with the continuing increase of numbers of mothers with school age children who are in the labor force. This change is not new, but the impact of this phenomenon is still unclear and open for much speculation.

Recently The New York Times quoted Eli Ginzburg, a Columbia University economist and chairman of the National Commission for Manpower Policy, as calling the flood of women into the work force as "the single most outstanding phenomena of our century. It's long-term implications are absolutely unchartable. It will affect women, men and children, and the cumulative consequences of that will only be revealed in the 21st and 22nd centuries."

The reasons for this rapid increase are complex and have something to say about family life styles. A second family salary is virtually necessary for survival in homes where husbands earn less than \$10,000 a year.

A second identified group of women who work are the wives of middle-income husbands. The second pay check permits the family to maintain its standard of living in an inflationary period. The incomes from these families range from about \$10,000–\$15,000 annually.

A third group of women who work are from higher income families whose desire for broader horizons, rather than money, is often a primary reason for working.

As women become more highly educated and pursue careers in professions, management and administration, we are continuing to see emerge what can be called dual-career marriages.

In a recent article featuring such marriages, New York magazine stated that "women with careers—not just jobs—who want marriage and a family too, are working on the frontier of a new life style. Although they are not in the statistical majority they are women of the future."

The article goes on to state that "this new life style is the biggest challenge to the institutions of home and marriage since divorce—and when it works it's a tribute to the ingenuity and management skills of this new breed of women—and to the men who are changing their way of living for them."

The Harvard Business School has offered a course since 1970 called "The Executive Family." This course deals with the psychological and physical problems of married couples in business. Who is to help the other families learn to understand and manage dual careers where allocation of material and human resources can become much more complex?

The need for management skills reappears time and again as we examine the implications for family life styles of women working. Think of all the areas of family life that need to be managed differently under these circumstances.

Who will care for children?

What meal pattern will family members follow?

How will the additional income be used?

How will household chores be handled?

What trade-offs will be made as families decide between the goods and services produced by family human resources and goods and services that will be purchased in the marketplace?

Will the family have leisure time to spend together? If so, how will it be used?

As you can see, the implications of women working are complex and not just for women alone, but for the men and children in their families, too.

The need for all family members to participate in the management of their lives is essential. Management of limited material and human resources to meet needs and unlimited wants.

Home economists are challenged to find ways to teach management skills to all family members in all types of families. A fresh look at resources available in the family and in the marketplace needs to be taken. As roles change, how will traditional divisions of labor be rearranged, without loss in quality of life?

And we know the population continues to increase even though families are growing smaller. What family life style changes does this portend?

The trends cited relating to the slowdown in marriage and child-bearing along with the increasing rate of divorce reinforce the Yankelovich Social Research Monitor findings. This report noted that we are

currently experiencing a period of focus on self. People are looking for self fulfillment and feel that it is their personal right. They have a high level of self confidence and are less willing than ever before to accept authority. This philosophy of self entitlement has contributed to the "no fault" society in which we live.

Certainly not all bad, the effects of these trends on family life have the potential of being major problems as family structures change and the world grows more complex. The needs for families to be the support system for basic human relationships becomes more vital than ever.

Not only do we need the current popular programs for self development and self expression, we also need programs in human relations to help develop an understanding of and appreciation for the banding mechanism between people. Interdependence among people, families, communities and countries must be continually reinforced.

Earlier we heard that 1 in 5 adults in our society can not function competently. This fact leads me to believe that more emphasis needs to be given to the family as the first school our children attend. Parenting has its primary goal to rear responsible, emotionally healthy individuals capable of mature, independent as well as interdependent functioning. Parents need to learn how to parent. Support systems in the form of day care, flexible work hours, parenthood education and many others are needed to help parents be better teachers in their homes.

Studies over the years have shown that characteristics of schools, classrooms, and teachers predict very little of the individual variations seen in school achievement. But, family background, particularly as it relates to the world of work, neighborhood, and community does consistently predict school achievement.

We are challenged to develop programs in parent education and encourage parents to become involved in the entire educational process of their children.

We also need to remember that the family is a system and that one aspect of that system can't change without altering all the other aspects of the system.

Even though we live in a world of constant change we can identify basic family functions of the family system. We are challenged to create programs to help families develop skills in these basic areas.

In my opinion these basic functions include:

1. Nurturing of people—individuals need the emotional support system found in families in its many forms.
2. Management of resources, both human and non-human—families must make decisions on questions such as the kind of life style they want to live; where they will live and work; how they will allocate their resources; in what proportion family members will work outside the home and on and on.
3. Parenting—families who choose to have children take on the responsibility of shaping the values of the next generation.

As you well know, there are multiple other functions of families, but I submit that the ones I've just mentioned are major and deserve emphasis in program development. The opportunities in these areas alone are unlimited.

## THE 1972-73 CONSUMER EXPENDITURE SURVEY

(By Eva E. Jacobs, Chief, Division of Living Conditions Studies,  
Bureau of Labor Statistics)

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Spending by consumers has recently been receiving even more attention than usual as a key element in the process of recovery from the recession. Although personal consumption expenditures constitute about two-thirds of the gross national product, detailed data on such expenditures by type of consumer have not been available since the 1960-61 Survey of Consumer Expenditures.

In the interim analysts of consumption patterns have been using annual aggregate estimates based largely on production and retail sales data. But aggregate data changes and their economic and social significance vary with the socioeconomic characteristics of a family—the amount of income it has, its size, the stage in the life cycle of the family, the number of earners, the amount of education of the head and the spouse. Information about trends in expenditures by different kinds of families has been sorely lacking. Such information is now becoming available as the results of the 1972-73 Consumer Expenditure Survey are released.

### USES OF CONSUMER EXPENDITURE SURVEY

The Consumer Expenditure Survey data are used extensively by Government agencies, private industry, university research workers, and families. In considering Government policy on the energy problem, various proposals are made to increase the tax on crude oil. In order to know what the impact of a tax will be on different income groups, the policymaker must first know how much is spent on fuel oil and gasoline at different income levels. Early in the energy crises the only data BLS could supply to the Federal Energy Administration and others were from the 1960-61 Survey in order to permit estimates of the relative burden to be borne. Now the data from the 1972-73 Survey are available.

The 1972-73 Survey data will also provide an input into determination of poverty thresholds and income adequacy. Families are affected by the decision on these levels because some federally administered programs are aimed at adjusting poverty base benefits to need—with variations according to family size.

Still another important administrative use of Survey data is made by the Internal Revenue Service. The standard tables of sales tax allowances set forth by IRS are based on the 1960-61 Survey.

Market analysts use the data as a guide to what to make or distribute or where to market what they already make.

Researchers use the data widely for analyzing consumption in economic models and simulating the economy for making forecasts.



Families use the data for comparing their expenditures with other families with similar characteristics.

The Survey is the responsibility of the Bureau of Labor Statistics because one of the most important uses of these data is to bring up-to-date the weights for the components of the Consumer Price Index. The data are also used in developing the family budget estimates and for general analysis of consumption. These applications of the data will be discussed after a brief description of the collection methodology of the 1972-73 Consumer Expenditure Survey which was different from that of previous surveys.

The 1972-73 Consumer Expenditure Survey consisted of two separate surveys, each with its own questionnaire and sample. (1) A quarterly panel survey in which each consumer unit in the sample was interviewed every 3 months over a 15-month period, and (2) a diary or recordkeeping survey, completed at home by the respondent for two, 1-week periods. This design differed markedly from that of all previous surveys, including the most recent (1960-61) one. In the earlier survey, total expenditures, income, and changes in assets and liabilities for the entire year were reconstructed during lengthy household interviews. The annual recall data were supplemented by a 7-day recall interview covering detailed food expenditures.

The 1960-61 Survey of Consumer Expenditures, like its forerunners, was conducted by BLS itself. The 1972-73 Consumer Expenditure Survey was conducted by the Bureau of the Census. In addition to its expertise in conducting household surveys, the Census Bureau had an experienced nationwide collection organization in place, since it had recently completed the 1970 Census of Population. Previously, BLS had to hire and train a survey staff and then disband it.

During the planning period of the 1972-73 Survey, research on different forms of collection methodology was done by the Bureau of Labor Statistics, the Survey Research Laboratory of the University of Illinois, and the Census Bureau. From these studies, and the experience of other nations, it was concluded that higher quality data could be obtained on large, less frequently purchased items such as appliances and cars if the data were collected by periodic recall and on small, frequently purchased items such as milk and toothpaste by day-to-day recordkeeping. This conclusion led to the creation of two questionnaires.

Separate samples for each survey were divided into two representative subsamples, one for 1972 and one for 1973. Two years were used in an effort to reduce the risk of covering a period of abnormal economic conditions.

The sample characteristics were the same for both surveys in terms of geographic location of respondents and socioeconomic characteristics of the population. Though the stratifying variables were the same for both interview and diary surveys, the same families were not asked to participate in order to minimize the burden of reporting upon any particular family.

#### INTERVIEW SURVEY

The initial quarterly interview provided socioeconomic characteristics of the consumer unit, an inventory of major durable items, and data covering a great variety of regularly purchased items bought since the first of the year. Expenditures for clothing and utilities were



collected every 3 months, a 6-month recall period was used for small appliances, and 12-month recall for major appliances, motor vehicles, and real estate.

The fifth and final interview yielded information on housing expenses, work experience, changes in assets and liabilities, expenditures for most goods and services requested in previous quarters, and detailed estimates of family income.

#### DIARY SURVEY

The diary was designed to augment the quarterly survey by obtaining detailed expenditures which were not covered in the quarterly interview. The major components were food, household supplies, personal care products, and nonprescription drugs. However, the respondents were requested to report all expenses so that they need not decide what to include and what to leave out. Each family was requested to keep two consecutive 1-week diaries. An interviewer collected information on the socioeconomic characteristics of the consumer unit when at the beginning and end of the 2-week period.

The diary questionnaire was divided by day of purchase and by broad classification of goods and services. Under food and beverages, for example, was a breakdown for dairy and bakery products (with the notation "indicate if milk is delivered"); meat, fish, and poultry (with the notation "indicate the cut of meat") fruits and vegetables and whether fresh, frozen or canned. The results were entries such as "skim milk," "T-bone steak," "dried apricots," "all-purpose flour," "saltines," etc. Also included were meals and snacks purchased at a restaurant or carryout, school lunches, etc.

To further ease reporting and improve response, a diary was printed in Spanish for those areas with large Spanish-speaking populations.

Cooperation with both surveys exceeded anticipations. Census reports that, for the quarterly survey, nearly 90 percent of sample units participated in each year, resulting in nearly 10,000 annual records for each year. For the diary survey, response rates were 80 percent the first year and 90 percent the second, with over 20,000 completed 1-week diaries in each year. These response rates, of course, indicate the amount of cooperation only. They do not reflect the quality of the response. Evaluation of the quality of the data is now being undertaken as a joint Census-BLS project.

Reporting was voluntary, and we are frequently asked whether the respondents were paid. The answer is "no." A brief experiment in paying for diary cooperation was conducted by Census, but it was concluded that response rates were not significantly improved by payment of \$5 or \$10.

#### DISSEMINATION OF DATA

The data will be disseminated in publication of tables and public use tapes. The publication of tables has been taking place as the data become available. Data from both years of the diary and selected components of the interview have been published. A list of publications is attached. There will be two sets of tapes, one for the diary and one for the interview. We hope the diary tape will be available by the end of 1976 and the interview in 1977.

## BLS ACTIVITIES

Now to return to the BLS activities concerned with these data.

First, the revision of the Consumer Price Index. The index serves two major functions. It is a yardstick for revising wages, salaries, and other income payments to keep in step with rising prices and it is an indication of inflation in the U.S. economy. The CPI is currently being updated and revised for the first time since 1963.

This revision is the first since the early 1960's and constitutes a large-scale effort to: (1) update the weights assigned to the various spending categories, such as food, clothing, shelter, medical care, and so on; (2) update the sample of items priced each month in the ongoing CPI; (3) update the sample of retail stores; and (4) modernize the conceptual basis and statistical methods employed in the CPI.

These improvements will be accomplished through a series of innovations introduced in the revision process.

The most obvious innovation is the addition of a new Consumer Price Index for all urban households. One of the major problems related to the revision program has been to determine just who should make up the index population. The present index represents the experience of wage earners and clerical workers, and therefore is, strictly speaking, appropriate for only this group. However, a more comprehensive consumer price index is needed to escalate the income payments for other population groups and to measure inflation and guide monetary and fiscal policy. Therefore, the Bureau of Labor Statistics will issue two indexes starting in April 1977—the traditional index and a new index that covers all urban households. Both indexes will incorporate improvements being developed as part of the revision program.

Monthly or quarterly indexes will be published for 28 cities compared with 24 at present; regional indexes will be available for urban areas of different population-size classes; and some index components reported will be of a more general character, covering a type of good or service instead of a very specific item.

In addition to these visible changes in the CPI, there will be some less obvious improvements: (1) The fixed market basket will be a more accurate reflection of purchases; (2) the outlets surveyed will be more representative of those actually frequented; (3) there will be some increase in monthly pricing, and quarterly pricing will, by and large, be replaced by bimonthly pricing; and (4) the measurement errors will be substantially lower than those of the current CPI.

The Consumer Expenditure Survey provides the basis for determining what people buy. The second step, determining where people buy marks another innovation in this revision.

A "Point-of-Purchase" survey has been conducted to provide data on the retail stores, mail houses, bowling alleys, doctors' offices, and other places where goods and services are bought. Approximately 20,000 families were asked in 1974 where they purchased various types of goods and services. From the survey results, a full probability sample of retail stores and other outlets to be used in collecting data for the monthly index will be developed for the first time. Here again the Bureau of the Census served as collection agent, under contract with BLS.

No one today can tell what difference all of these improvements and innovations will have on the CPI for wage and clerical workers computed using the revised methods in 1977. Nor can we predict the comparative movement of the urban CPI and the wage earner CPI. Both indexes will be calculated for at least 3 years during which time the empirical evidence will be studied.

#### FAMILY BUDGETS

The other BLS program that has made extensive use of consumer expenditure survey data is the urban family budget program. The current estimates of budget costs for a hypothetical 4-person family at three levels of living were first constructed for 1967 and have since been updated only for price change using the CPI.

A brief review of the estimating procedure is in order. Budget quantities and pricing specifications were derived from two sources: (1) Scientific or technical judgments concerning the requirements for physical health and social well-being; and (2) analytical studies of the choices of goods and services made by consumers in successive income groups, as reported in the 1960-61 Survey of Consumer Expenditure. Scientific standards for food, specifically the USDA food plans, and housing were adopted. For other components, quantities were derived from the application of statistical estimating techniques to derive the point of maximum elasticity. The quantities were then priced using direct pricing and CPI prices. Without going into all the details, it is sufficient to state that the quality of the price data in the current budgets have serious shortcomings.

The availability of the 1972-73 Consumer Expenditure Survey data and the CPI revision has stimulated a review of the entire program. Considerations in this revision process will be similar to that for the CPI: (1) Use of more recent data; (2) application of improved statistical techniques; and (3) improved pricing procedures. This work has begun. In the meantime, the existing updating procedure will be continued.

#### SOME SURVEY RESULTS

The Bureau has been working hard to make as much data available as possible and has been releasing data by component as soon as processing, correction and review have been completed. Analysis activity has been limited because the first priority has been preparation of the data for the public. However, some examples of the various ways the data can be looked at can be presented from the data already published. Researchers and other users will find many more and we hope that extensive use will be made of the tables and the tapes.

One way of examining the data is to look just at the 1972-73 results and examine the differences in consumption patterns among different family types. Another is to make comparisons with data from the 1960-61 Survey and see what changes have taken place. Still another is to compare with other sources of expenditure information which requires great care. Obviously, if a set of expenditure data associated with socioeconomic characteristics were readily available from another source there would be no need to have a BLS survey. We are instead limited to making imperfect comparisons between series that are different in concept, coverage, and methodology.

It is a well-known observation that as income rises, the proportion of income spent on food falls. A comparison of the food at home to income ratios in 1960-61 and the 2 years of the diary confirms this relationship within each period and between the periods.

FOOD AT HOME AS A PERCENTAGE OF INCOME BEFORE TAXES 1ST-YEAR AND 2d-YEAR DIARY

Food expenditure	1960-61	1st year diary <sup>1</sup>	2d year diary <sup>2</sup>
Total reporting income.....	15.8	11.6	12.1
Lowest 10 percent.....	36.8	58.2	57.3
2d.....	26.9	29.2	30.3
3d.....	22.6	22.1	22.1
4th.....	20.7	17.5	17.9
5th.....	18.6	14.9	15.1
6th.....	18.1	12.9	14.0
7th.....	16.6	12.1	12.0
8th.....	15.4	10.5	10.8
9th.....	13.9	9.1	9.5
Highest.....	9.7	6.2	6.5

<sup>1</sup> May 15, 1961 release.

<sup>2</sup> BLS Report 440-2.

Note that the decline has taken place for every income group except the lowest 20 percent with the third decile staying the same. This contrary movement of the ratio at the low end of the income range can probably be attributed in part to the food stamp program, which supplements incomes of low-income families by an increment that is not reported as income but appears in expenditures for food.

The data can also be looked at in the cross section to examine the behavior of different kinds of families at a point in time. The average family with age of head 45-54 spends about 20 percent more on clothing than the 25-34 group. I emphasize these age groups because by 1980 the households headed by age group 45-54 is expected to decline in absolute numbers and even more as a proportion of the growing total. The younger group is projected to constitute almost one-quarter of all households. Families in the declining age group have higher incomes and expenditures in general, spending 50 percent more on domestic new cars in 1972 than did the younger group. Differences in spending patterns by age of head, combined with Census projections of age of population, may have implications for the demand for particular industries and products.

Changes in the size of family also influence changes in spending patterns. The average family size in the surveys has declined from 3.2 to 2.9. One- and 2-person families now constitute more than 50 percent of total families. One of the interesting observations from the diary data is that since 1960-61 food away from home has increased significantly as a proportion of total food, from 17 percent to 27 percent. Part of this increase results from the relative increase in younger household heads who spend a higher than average proportion of their food budgets on food away from home. Additional factors in the shift to food away from home, which is found throughout the income distribution, are the greater participation of married women in the labor force and the development of the fast food industry.

One more interesting note about another newsworthy product, gasoline. The diary shows an increase of 38 percent in real consumption of gasoline per consumer unit since 1960-61, accompanied by an increase in the average number of vehicles from 1.0 to 1.3. A somewhat star-



ting indication of the importance of gasoline in the average family budget is that expenditures for gasoline in 1972-73 were an amount equal to about 30 percent of the amount spent for food at home.

These observations are only the tip of the iceberg. The vast amount of data to be available will generate a good deal more research in the future. However, it is clear that even more current data are needed for all the uses stated earlier. To serve this need BLS is proposing a continuing consumer expenditure survey. Planning for this activity has begun but final funding has not yet been received. We are hoping that the administration and the Congress agree with us to the importance of continuous expenditure data and that the work can go ahead.

#### CONSUMER EXPENDITURE SURVEY PUBLICATIONS

Date of publication	Publication No.	Coverage
DIARY SURVEY		
August 1976.....	BLS report, 448-3.....	2d-yr diary data, cross tabulations, selected average weekly expenditures, covering the period July 1973 to June 1974.
April 1976.....	BLS report, 448-2.....	2d-yr diary data, 1-way tabulations, selected average weekly expenditures covering the period July 1973 to June 1974.
November 1975.....	BLS report, 448-1.....	1st-yr diary data, cross tabulations, selected average weekly expenditures covering the period July 1972 to June 1973.
May 1975.....	USDL press release 75-276.....	1st-yr diary data, 10 1-way tabulations, selected average weekly expenditures covering the period July 1972 to June 1973.
April 1975.....	USDL press release 75-212.....	1st-yr diary data, 10 1-way tabulations, selected average weekly expenditures covering the period July 1972 to June 1973, including a narrative by Julius Shiskin, Commissioner of BLS, discussing preliminary findings from the dairy survey.
INTERVIEW SURVEY		
December 1976.....	BLS report, 455-3.....	A report on average annual expenditures classified by family characteristics, 1972 and 1973.
May 1976.....	BLS report, 455-2.....	Average annual expenditures for selected commodity and service groups classified by family characteristics, 1972 and 1973.
February 1976.....	BLS report, 455-1.....	Motor vehicle purchases and repairs selected average annual data from 2-yr interview survey for 1972-73.

Note: Also available upon request, selected data on food stamp participants in machine tabulation form.

#### OTHER PUBLICATIONS

Carlson, Michael, The 1972-73 Consumer Expenditure Survey, MLR Reprint 3018.

Shiskin, Julius, Updating the Consumer Price Index—An Overview, MLR, Reprint 2979. The Consumer Price Index: How Will the 1977 Revision Affect it? BLS Report 449.

Family Budgets, BLS Handbook of Methods, Bulletin 1711, Chapter 9.

Jacobs, Eva E., Progress Report on the 1972-73 Consumer Expenditure Survey, 1972 Proceedings of the Business and Economic Section, American Statistical Association.



## FAMILY MONEY MANAGEMENT

(By Mrs. Julia H. Barnes and Mrs. Bonita S. Bridges, Extension Specialists,  
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### CONSUMER MONEY MANAGEMENT

Dr. Richard Klemer said: "If the major problems of mankind are ever to be solved, the solution must not come from formulas or statistical tables, but from the nursery, the kitchen and the family-conditioned consciences of a better prepared generation."

As societal needs change so do most methods of teaching resource management change. The basic core curriculum of home economics was delineated by its founder Ellen H. Richards:

In its most comprehensive sense, home economics is the study of the laws, conditions, principles and ideals which are concerned on the one hand with man's immediate physical environment and, on the other, with his nature as a social being, and is the study of the relation between the two factors. It is a philosophical subject—something to connect and bind together into a consistent whole the pieces of knowledge at present unrelated.

The three vital attributes of home economics are the interdisciplinary approach, central focus on the family, and the acceptance of the challenge of change.

The tremendous shock of rising prices, the diversity of a mobile society, and changing consumer demands have added dimensions to the inflation-recession money puzzle. The American family faces an incredible need gap between where it is and where it wants to be.

Home economists perceived the need for relevant, purposeful, and useful learning experiences for solving problems incurred in the rapid socioeconomic changes in Mississippi. An innovative method was sought and found by extension educators to alleviate the acute and rapidly increasing resource management problems.

The Consumer Money Management project proposal was a unique educational endeavor designed to investigate the effectiveness of group and individual money management consultations. Centers in three strategic areas in Mississippi were sought.

The proposal became a reality because of a number of prevailing factors. They were the low per capita income of families; predominance of low-income families, senior citizens, and young families; the continued rise in the personal debt ceiling; and the lack of adequate facilities or personnel to provide learning centers where families could go for confidential, unbiased information.

The ECOP (May 1971) had established the need for Home Economics Extension in Urban America. The statistical data pertinent to income and economics of Mississippi stipulated the need for the money management educational services. Educators, researchers, and State agencies further verified the need for the pilot project.

## MONEY MANAGEMENT CONSULTATION CENTERS

A grant from ES-USDA was made July 1, 1973, for one money management center, instead of the three centers requested in the proposal. The immediate problem was to select the strategic four-county area for the money management pilot project.

Headquarters for the project was located at Jackson, Mississippi's capital. Each of the four counties had a mobile learning center for individual and group consultations. The term *consulting* is more realistic for the expertise of the home economist instead of *counseling*; therefore, *consultation* is the consideration throughout the project, not *counseling*.

One professional home economist was employed and four existing county extension home economists were partially assigned to the money management project with the goal that an effective money management learning center might become available in every local extension service office.

## OBJECTIVES

The objectives of the project were:

1. To create awareness of the center and the services offered to families in solving their money management problems;
2. To provide accurate, unbiased information;
3. To teach application of sound money management principles;
4. To acquaint families with community resources and teach them how to wisely use these resources;
5. To initiate a series of lessons on money management in public schools; and
6. To help each family set its own goals and motivate members to work toward these goals.

## METHOD

The concept of a mobile money management learning center was utilized to reach individuals and groups. This project was a multifaceted involvement at all stages of development and implementation. It required multidisciplinary, multi-agency and multi-institutional cooperation. Communications were pertinent at every level (Federal, State, and local), in articulating extension contributions to the emerging problems and learning and understanding the objectives and mission of related agencies and organizations. The work of advisory groups, steering committees, volunteer leaders, volunteer professionals, and resource persons were coordinated.

One of the dynamic rewards of this project has been the enthusiastic involvement of resource persons and volunteer leaders. Lawyers, doctors, ministers, bankers, editors, educators, and other community leaders of business, industry and organizations have freely given their invaluable time and expertise in helping extend the power of the family dollar.

Volunteer leadership has been a basic concept of the extension service in helping people help themselves since its conception. Leadership training was necessary at the first of the project and on a continuing basis. Effective tools were identified and supplied for dealing with clientele. Dynamic volunteer leadership was tremendously important in

every phase of the money management program—development, implementation, and evaluation. The involvement of leadership gives depth and strength for redirected strategy and adjustments for future programs.

#### CONTENT

This project identified the intense need and interests of families in financial management. The consultation method offered possible solutions of limited family financial management problems.

Financial management includes the family's total resource plan and expectations for beginning a family; rearing a family; educating a family; planning and securing occupational advancement, and retirement living. All stages of the family life cycle are crucial in solving the family's socioeconomic problems.

In coping with economic change, the family is involved in inflation, unemployment and economic insecurity. Resources must be maximized to enhance the quality of life and achieve the most satisfaction for the family. To meet needs and cope with economic changes and adjustments, families need help and guidance in developing a realistic, adjustable financial plan. This plan shows how to increase the family's standard of living and provide protection and security to meet family needs. The plan includes:

- A spending plan to control the use of all family resources;

- A plan to pay debts one at a time until a safe level of credit is reached;

- A plan to extend resources of the family, decrease expenditures, recycle goods, develop buymanship skills, and utilize available community and material resources;

- An insurance plan based on family needs and available money; and

- A savings and investment plan tailored to the family's values and goals.

Six lessons were written and used with appropriate reenforcement handouts. A family financial consultation handbook was developed. The financial consultation handbook and the consumer money management pilot project report were mailed to one resource management specialist in every State.

#### OUTSTANDING ACCOMPLISHMENTS

Money management became a household word throughout the State. The five consumer money management centers aroused public awareness. A total of 22,898 people sought accurate, concise money management information in 656 group consultations. Preventive management was used throughout the teaching-learning activities. Of the 1,966 individual consultations, only 69 families needed continuing sessions. The 303 indepth sessions for these 69 families averaged about 4 hours per family, depending on their need and willingness to respond to the assistance provided.

An immediate result of the pilot project was the incorporation of a money management course in the curriculum of the Jackson city schools. Acceptance of the overall project resulted in the Mississippi Cooperative Extension Service employing an area consumer management specialist to expand and continue group and individual money management consultation learning centers.

## RESOURCE MANAGEMENT—MISSISSIPPI OUTREACH

Focus topics relative to legal matters, debt management, consumer protection, and money management were presented in 81 counties by extension homemaker clubs that involved 16,051 women.

A money management program packet was made available for all 82 counties. This packet was prepared as a readymade program for volunteer leaders of organized groups: Civic, church, professional, Federal, and other community groups.

The dollar plan packet was prepared for all professional women employed by extension service for resource management outreach programs. Every county home economist can consult with families about financial management.

The Better Family Living Lesson Series (10 lessons) were developed and utilized in a special pilot project for educating disadvantaged families in Tallahatchie, Washington, and Bolivar counties. The lessons highlighted health, housing, and management. The 10 management lessons developed and tested in this pilot project were used in the money management project in the four counties.

Two hundred and ten resource management packets were mailed to presidents of federated clubs. As a result, credit, legal affairs, and money management workshops were conducted all over the State. Over 18,000 people were reached with these resource management programs.

Two mall festivals, "Stretching the Family Dollar", involved health, clothing, family life, home furnishing, housing, and resource management specialists. Over 5,000 persons received assistance in these resource management mall festivals and outreach programs.

Radio, television, news packets, newsletters, and exhibits helped extension home economists make money management a household word throughout the State of Mississippi.

The six lessons developed for the consumer money management project were presented over television by the home economist in Lauderdale County. These programs reached a large segment of Mississippi and Alabama families. The lessons were given by radio in Yazoo County and later given as a radio series in two other counties outside the project area.

One hundred twenty-four people attended a consumer outlook area workshop. This was a very timely, educational special interest activity to help Tate and DeSoto countians stretch their dollars and resources. Resource people making presentations and consultations were the extension economist, area horticulturist, extension management specialist, district home economics program leader and county extension persons.

During this fiscal year seven fixed income money management seminars were held in strategic State locations. The sites were based on population distribution of persons of a wide economical spectrum with fixed incomes (veterans' pension, Social Security, private sector pension, and annuity plans or other fixed income or salaries). The thrust of this seminar concept was education in money management and consumer abuses.

Local promotional programs were initiated by county home economists and advisory groups composed of community leadership representing educators, civic groups, professionals, business, industry,



and other groups. Over 500 people attended; 643 money management packets were distributed; 1,825 programs were circulated.

Mississippi's new focus program is called "Pocket Watch." The program involves all home economics personnel throughout the State. Dr. Marilyn Purdie, State leader of home economics for Mississippi Cooperative Extension Service, appointed a special committee to initiate the planning of this State-wide home economics emphasis program. Housing is the first resource management area, to be followed respectively by food and clothing. All subject matter specialists will work with local home economists in extending the buying power of the individual and family dollar along with emphasis on maximum resource management.

#### REACHING PEOPLE AND PROBLEMS

How can we as extension educators reallocate our staff to reach people and help them solve problems? How can we shift gears and change to help shape future programs to fill the need gap?

In extension we extend the area of the university. We are committed to all people—an educator responsible to all the people, an official responsible to all the people, an official responsible to community and national welfare, and a catalyst to accomplish needed changes in social and physical environment.

We can't tie down home economics. We must strive to teach and train people with every preventive method. Our program development, implementation, and evaluation must involve key leaders on the grassroots level. The social action process will enable us to identify problems in every stage and communicate at all levels and recognize all levels of learning. We must expedite intensive training, using all available resources. Extension educators must join with leaders of business, industry, other educators, professionals, agencies and organizations to fully use volunteer leaders and resource persons.

We need to strengthen extension programs by using other means in addition to our regular extension resources, such as grants, government and vote, and expertise from other disciplines, government, business, and industry.

Program development must be based on societal needs with sound plans, purposeful objectives, built-in evaluations that articulate accomplishments in measurable terms relevant to today's critical issues.

The expertise within home economics and extension home economics should have an impact on public policy and programs that shape the economic and social climate within which families and individuals live. As professionals we are obligated not only to help individuals and families but to influence the shaping of policies, the institutions, the context within which the individuals and families live. Perhaps we need to start by helping society gain the proper perspective of the underlying societal attitudes and values which serve as the ultimate long-run basis for the policy decisions that shape our evolving social order.

If programs are to meet audience needs, we should set priorities, allocate resources, select counties or areas to try innovative teaching techniques, and involve available resource people with expertise in programs.

Some specific suggestions for shifting gears and adjusting to changes are:



Get more administrators involved in planning and implementing programs;

Use home economics knowledge, experience, and expertise to interpret the function and interrelationship of the social, economic spheres of living to families;

Develop innovative subject matter programs applicable to all family members at all age levels, at all socioeconomic levels, and to all aspects of living;

Assist other professionals who reach individuals and families with economic and consumer management subject matter;

Involve leadership in business, industry, labor, government, education, other professionals, and community organizations; and

The home economist must be an organizer, coordinator, supervisor, and an administrator.

Extension of the Money Management Center, operated by the State of Mississippi as of July 1, 1975, has provided an opportunity to develop a comprehensive program for four counties in the largest metropolitan area of the State. At the onset, the program was designed to investigate the effectiveness of individual and group consultations for young families, senior citizens and low-income families.

Presently, consumer education is available to all residents of the four counties. Potentially our audience represents 331,191 individuals. U.S. Department of Health, Education, and Welfare News, October 1975, reported that 30 percent of the total population functions with difficulty in the area of consumer education. If the designated Mississippi area is typical, that represents 99,357 consumers in need of consumer education.

This discussion will concern expansion, methods, leader selection, results, future developments, and general observations.

#### EXPANSION

At the inception of the comprehensive program, an extensive contact program was launched. Contacted were banks, educational institutions, lending institutions, mortgage companies, Federal- and State-related organizations, marriage counselors, credit managers, personnel managers, newspapers, television and radio, church leaders, home economics teachers, lawyers, economic teachers, psychiatrists and psychologists.

The purpose of the center and findings verifying the need for consumer education were explained. An effort was made to help related professionals realize either they and/or their clients and/or personnel could benefit by taking advantage of consumer information through the extension center. Each contact added to our accumulation of knowledge and understanding of economic problems.

What happened as a result of these initial contacts? The telephone began to ring and ring. Opportunities appeared from all angles.

#### METHODS

One method used was teaching lessons to groups: YWCA, series of three; Unitarian Church Sunday sermon; Boyd School PTA; parents' meeting, St. Jude Day Care; Pearl Church, training union; Rehabilitation Center; 17 senior citizens groups; Central Presbyterian

Church; economic classes, junior college; four mall type meetings; Intra-Education Center; adult education classes, city schools; CETA adult classes; two bank women associations; Cancer Society; Parents Without Partners; Harbor House for women alcoholics; Baptist Young Marrieds Retreat.

What did we teach: Controlling credit; establishing family credit limits, use of food dollar, and making a spending plan.

Approximately 6,000 people have been engaged in some type consumer education group meeting.

Individual consultations are made by appointment only 2 days a week. Referrals have come from mental health center, welfare office, welcome wagon, banks, legal services, television shows, social workers at various hospitals, credit bureaus, psychologists, YWCA, psychiatrists, attorneys, store managers, church groups, allied services, personnel directors, home economists, attorney general's office, loan companies, family services, and clients themselves. Correlation between contacts and referrals is significant.

Eighty-seven families have been assisted in one fiscal year. Because of revelation of related problems, a file has been established and additions are made constantly to develop broader understanding of money interrelated problems such as alcohol, marriage problems, divorce, unemployment, and wife working.

Families ask for help in making all types of economic decisions.

For a breakdown on individuals seeking assistance: 53 percent, middle income; 32 percent, low income; and 15 percent, high middle and above.

Other information: 30 percent, divorcees (men and women); 5 percent, unemployed; 14 percent, senior citizens; 44 percent, 30 to 50 years of age; 42 percent, below 30 years of age.

The individual making the appointment is asked, "What seems to be your greatest problem?" This gives time for needed research and prevents a lot of wasted time getting to the point. Problems have varied from "my husband will not let me have a checkbook" to "we believe in the 'free life' but how can we pay our bills." One even said sex life was biggest problem because she could not "love" her husband if he didn't pay bills. Each consultation has provided one or more learning experiences and rendered preparation for the future. The first effort is directed toward the client's greatest present need.

Contributing factors in ranking order of importance: (1) Overuse of credit; (2) unaware of total expenditures; (3) no financial plan; (4) failure to balance checkbook; (5) lack of willingness to regulate purchases with available money; (6) divorce; (7) lack of cooperation with other members of the family; (8) poor shopping practices; (9) lack of knowledge and desire to take care of all items, thus resulting in more frequent purchases; (10) choice of house, will not accept alternatives.

*Mass media.*—One daily paper requested original educational article and chose to caption it "How to Manage Your Money." Another daily requested case stories. Circulation of these two dailies is about 85,000. Another article entitled "Your Family and Your Dollars" is published in four county newspapers.

Periodically, taped interviews are done for radio stations. One of the most popular morning shows in this area is "Coffee with Judy." The

hostess answered our request to tell about our consumer center and has followed up with many more requests. Viewers are estimated to be 10,000.

Consumer hints are sent occasionally to a television announcer who does consumer reports.

Each 8 weeks we do a special television show on another channel.

*Newsletters.*—Two types of newsletters are sent quarterly. One is directed toward professional audience and the other toward clientele. Total newspaper mailing list is about 600.

#### LEADERSHIP SELECTION AND DEVELOPMENT

Notice the word selection. Leadership has been sought in areas where leadership already existed, but lacked training in consumer education.

*Preschool money management.*—This program teaches money management to preschoolers. Pilot program was June 22 with a selected number of preschool educators. Twenty-eight attended with potential of 3,461 students. This number times two potential adults equals 6,922 parents who will receive some degree of consumer education.

Yazoo County requested a similar workshop. Forty-three workers participated which means a potential of 1,025 students and a potential adult audience of 2,050.

Kindergarten directors were urged to follow-up with parents' meetings, or send handouts to parents. If the basic management concepts can be taught in the 4- to 5-year old group, then the continuous consumer education program would have sufficient support of understanding.

Young marrieds need consumer education as much as other groups. Where did we find leadership? Bridal consultants distributed 1,500 packets of consumer education to brides. Bits of consumer information were used in some of their bridal educational programs.

*Welcome Wagon.*—The area we serve is highly transient so newcomers constitute a greater number. Welcome Wagon hostesses are trained to convey pertinent information. Now the Jackson Welcome Wagon takes a leaflet about our center and other money management materials to about 150 newcomers monthly.

*Economic course—junior college.*—Much time was spent working with an economic teacher on planning an outline for a course in consumer economics now being offered.

*Pastor training.*—One survey indicated people go to pastors for help with all problems, especially money problems. Pastors indicated they lacked knowledge in the field. Training was offered to one county association with 22 pastors participating.

*In-service training for employees.*—Potential teachers are personnel directors and training coordinators. We have had two training sessions for employees.

*Library.*—Changing Times, October, 1976, indicates money management books are among top requested in libraries. We have distributed extension publications for resource files in local libraries.

*Homemaker club leaders.*—Two counties have requested training for homemaker club leaders. Sixty-six leaders participated and will share information with other groups.

*Advisory groups.*—Three of the four counties have active advisory councils composed of professional and nonprofessionals. Ideas are explored with the group to solicit their reaction and suggestions.

Other educators check out slides and posters and materials to use with groups. A teacher at the Methodist Rehabilitation Center regularly uses our materials with her classes which change quarterly. One teacher with an adult education program was trained to teach consumer education in preparation for GED test. An instructor with CETA has been trained and uses our materials to teach consumer education to her adult classes.

About 9,660, individuals have been reached through leaders. This has been reported as our secondary audience. If you have followed us statistically, you realize this is 4,152 more than we reached through group meetings.

#### RESULTS OF EFFORTS

Libraries concur with Changing Times that money management material is requested by the public. Resource files containing educational materials are being used daily.

Individuals are asking for appointments as a result of Welcome Wagon hostesses and other leaders.

One county outside our area requested the State specialist to do pre-school money management training.

One Welcome Wagon hostess recently requested training on use of the food dollar so she could offer the information at the coffee held for newcomers. She plans to have a monthly class which will involve 20 to 30 homemakers.

One deacon, encouraged by the pastor, taught a series of classes on money management to about 55 adults. He used our slides and other materials.

Newsletter results have indicated a desire for consumer education programs for students. Mailing list includes home economics teachers. The first presentation to home economics classes was November 1.

One pastor holds a conference with each couple he marries. One entire session is devoted to money management.

Results of individual conferences are: Families are reducing debts; families indicate they are happier; there is much improvement in shopping decisions.

Working through personal directors has been slower than expected. "I spend so much time talking to employees about their money problems. I don't have time to interview," remarked one personnel director. Time for training on the job has been biggest factor.

A referral file, listing all available consumer resources, has been developed to encourage families to use what they have available.

#### FUTURE PLANS

Future plans include completion of a learning center at the center's office and of a complaint referral system.

Also included are workshops for elementary teachers for summer of 1977, for junior high teachers for summer of 1978, and for senior high teachers for summer of 1979.

A program for bank managers on how to help families establish credit limit will be initiated.



Planned also are a regular consumer program on television, a workshop for personnel directors on helping employees with money management problems for summer of 1977, and another workshop as follows on preschool money management.

Organization of the junior consumer council is also planned.

#### GENERAL OBSERVATIONS

Consumer education has too long been termed management for women and agricultural economics for men. Professional females need knowledge of gross national product, market, and price control. We need an interrelated approach.

Even the so called "well-educated" are poorly equipped to handle their money. Our traditional education system is not preparing citizens to deal effectively in the marketplace.

A gap exists among creditors in knowing previous credit obligations.

APR knowledge is limited.

Very few families have faced a credit limit.

Church, recreation, or health insurance are chosen to reduce budget (sometimes all three) without any plans to take care of such things as hospital bills.

Families want help in making specific decisions.

Alcohol is a contributing factor to money management problems.

Not only does Mr. or Mrs. Consumer not know how to balance a bank statement, but much knowledge is lacking in purchasing. "I don't know what to ask." When new products appear on the market, they want them, but they don't know what questions to ask to be a better informed consumer.

Families will talk about problems when they trust an individual or when the individual is an employer.

The secondary educational curriculum has not prepared the average consumer to understand the word manage. Often we do an evaluation after lesson. Typical is this statement: "Don't write a news article or tell me to manage, tell me what is manage." We must start at the level of understanding.

Most consumers comprehend "manage" better if it is broken down specifically. We have changed our terminology at the center; for example, subtract each time you write a check.

Panic is the feeling in financial crisis. Families need to become aware of alternatives such as mobile homes, used appliances or doing without.

A sudden decrease in income doesn't mean a family decreases consumption accordingly such as divorced or unemployed. Adjusting to a lower standard of living is difficult.

Differences between needs and wants continue to be confusing. Some needs are biologically determined and some socially determined.

Elementary education is needed. What is first step to take if you can't pay your bills?

Repairing and proper use of appliances could prevent financial crisis.

Emotional health is affected in financial stress.

Leaders must be secured to extend information.



Consumers have been exposed to advertising without education on interpreting advertising.

"Savings" concept is savings are for rich folks.

Values determine use of money to large extent.

Consumers have information at hand on health foods, special diets but lack general, accurate information on consumerism.

We have tried different approaches—methods—but the process of producing the maximum educational results to the largest number remains a challenge. We would like for our educational efforts to help a person have practical ability, money wisdom, guiding conscience, and value determination to make purposeful decisions, and live with decisions in such a way that he can relate happily to the economic and social world.

## CONSUMER LEGISLATION

(By Jane S. Wilson, Editor, Consuming Interest\*)

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Trepidation is the word that best describes my feeling when I accepted an invitation to come here today to talk about consumer legislation. Knowing that this date was exactly 2 weeks after the national election which could drastically change the *outlook* for consumer legislation made it impossible for me to prepare my remarks very far in advance. And, as it turned out—well, you know how it turned out.

Before I say anything about how those election results will affect the prospects for consumer legislation, one thing must be firmly fixed in our minds. Consumer affairs is not the top priority of the incoming administration, as it has not been of any other. Before anyone can tell you what President-elect Jimmy Carter will do about making appointments to regulatory agencies which deal with consumer issues, making legislative proposals to the Congress, or anything else, we must wait until Carter himself addresses the questions. Before he does he has to appoint the members of his Cabinet and a White House staff, and deal with such other cosmic questions as the possibility that war will break out in some hot spot in the world.

Consumer affairs have been my preoccupation for nearly a decade. They are very important to you, or I would not be here to talk to you. In the past 2 weeks, I have talked to many people who are vitally interested in what Carter will do about consumer issues, even some who have worked with the transition teams to brief the new President in this area. They say that there is every reason to believe that the hopeful noises the President-elect made during his campaign about having an open government and appointing consumer-minded people to top positions are true. They say the people around him intend to follow through on those promises. They also say that the first real hard information will probably not come until Carter outlines his legislative program in the State of the Union message.

Meanwhile I have filled up a notebook with the speculations of top consumer advocates and others whose futures depend on how Carter and the 95th Congress act and react once the cards are on the table. Before we talk about those things, let's get one other thing very firmly in mind. Presidents all start out with one group which expects everything from them—this time the consumer advocates fall into *that* group—and one group which is scared that the other group will get everything it expects—this time the majority of the business community falls into *that* group.

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\*The views expressed in this paper are those of the author and do not necessarily reflect the opinion of USDA.

The one thing I will not do here today is make predictions—except for one—the group with the high expectations will be disappointed, and the group with the strong fears will find some of them unwarranted. Presidential records substantiate this.

From the mass of evidence I have collected, I know that there are a couple of things Jimmy Carter has to do fairly soon to keep from going from 100 percent to zero popularity with consumer activists: appoint some consumer-minded people to the regulatory commissions, such as the Federal Communications Commission and the Federal Trade Commission; and to keep his promise to fully support and sign legislation creating a consumer affairs agency.

The new administration will, of course, have to go far beyond that already pledged beginning if Carter is to fulfill his ambition, expressed last August when he addressed a consumer forum—to challenge Ralph Nader “in the future for the title of top consumer advocate in the country.”

Carter went on to say in that August speech that he strongly favors legislation to create a consumer protection agency or an agency for consumer advocacy and that he hopes it will be one of the first bills passed in his administration. Beyond that, although he provided some hints to his positions on or feelings about a variety of consumer issues, he did not outline any kind of a consumer legislative program, nor has he done so since then. That’s the main reason why, with the predictions of Carter’s election running strong, I had some fear about what I could tell you about the future on this particular day.

But, even so, I will not cop out completely. Before I am finished I will identify some areas in which I think consumer programs not only can but should be built to meet the needs of the consuming public in the foreseeable future. I will also tell you exactly why I think the climate is better than it has ever been for solving some consumer problems without legislative mandates and how you can help keep that climate alive.

One of the most jubilant groups in our society today is the core of professional consumer advocates in Washington. Not only has a President whom many of them publicly endorsed in the final days of the campaign been elected; but they feel that by and large the new Congress will be highly sympathetic to their causes. One indicator of the latter is that all but four of the 92 congressional candidates endorsed by the Consumer Federation of America were elected. These candidates were selected based on their votes on pieces of consumer legislation considered by the 94th Congress, or in the case of nonincumbents on their answers to a questionnaire prepared by CFA.

These Washington activists have turned from talk about disbanding their cadre of lobbyists and using those resources for projects likely to get better results for consumers if President Ford had been elected, to enjoy the heady euphoria of having some from their ranks selected to serve on the transition teams preparing materials for the new administration. Harrison Wellford, a Nader affiliate who has concentrated a good deal of effort on the Department of Agriculture over the last few years, leads the team on Governmental Reorganization, for example.

Just what is in the transition papers prepared for President-elect Carter on Governmental Reorganization is not known. Neither do we

know how the recommendations for reorganizing those portions of the Federal Government which deal with consumer affairs will be altered after such other areas as international economic problems are considered with them. I cannot venture to say what the President-elect will do in the months ahead, since chances are he has not yet decided himself.

It is possible to speculate, however, based on some of the things Carter said back in August, that he may be more sympathetic than otherwise to some of the suggestions for reorganization—otherwise known as regulatory reform—made by the oversight subcommittee headed by Congressman John Moss (Democrat from California) and released in October.

Carter said that he wants to close the revolving door through which members of a regulated industry pass into the agency which regulates them and then back into the industry. He said that if Congress does not pass such a law, he will “through Executive Order and through a firm commitment from those who I am considering for appointment—prevent that continuous ingress and egress between those two entities in our society.” The Moss report agrees.

Carter said, “I think one aspect of regulation is very vital to the consumer. That is the regulation on things which the consumer cannot adequately assess for oneself: hidden chemicals in food, the amount of damage that might be done to the environment and so forth. On the other hand, economic regulation which permits, in many instances, an unwarranted increase in the price of products to consumers ought to be drastically minimized . . . in my own appointments to the regulatory agencies that are involved in economics, I would try to enhance the degree of competition that presently exists and lower the prices that are being paid by consumers.” The Moss report, in general, agrees—as do other congressional committee reports.

Carter said: “. . . I will appoint consumer or citizen advocates on the FCC (Federal Communications Commission) and in other regulatory agencies as well . . . to fulfill the original concept which was that it (FCC, other agencies) would be a forum for the people and the protection of the people themselves.” The Moss report again agrees.

Looking at this August address, which stands nearly alone as an expression of the President-elect's views on consumer affairs, it conveys strongly the impression that Carter's reorganization plans may tend to strengthen agencies and departments of Government which deal with protecting the population against toxic substances and other things that threaten their health and safety and attempt to do away with some regulation which is seen as stifling to competition. This suggests some areas around which programs can be built, such as food, drug, cosmetic and general product safety. We'll get back to them.

It also conveys most strongly that Carter will be solidly behind efforts to create a consumer agency and to strengthen citizen participation and access to Government. The President-elect made much, in his August address and throughout his campaign, of simplifying Government so that the average person can understand it and know where to go to get answers to questions about it.

And that, it seems to me, is another clue for building programs. Many in this audience have spent their careers helping consumers



solve just such problems. Even though I know that "history" is not a word guaranteed to quicken the pulse of an audience at the end of a long day of listening to speeches, I would like to take a brief look at the last time a Democratic regime took over from a Republican one. It was the dawn of the age of consumer legislation.

On March 15, 1962, President John F. Kennedy sent the first consumer message to Congress. It set forth the five consumer rights which have so often been reiterated. Since I expect you know them by heart, I won't repeat them here. Instead, let's look at some of President Kennedy's consumer priorities, his requests for consumer legislation, and which of those requests have not yet been fulfilled.

Kennedy told the Congress that he had already directed departments and agencies to step up *food and drug protection*. He singled out the "potential hazards" in increased use of food additives, food colorings, and pesticides and the need for stepping up meat and poultry inspection activities. *Safer transportation*, Kennedy said, could be brought about by changes in automobile design to "help reduce the unconscionable toll of human life on the highway" and to "reduce air pollution." Kennedy noted that he had directed the appropriate agencies to produce *more effective regulation* of movers of household goods, deceptive trade practices, false advertising, natural gas prices, and the TV network program selection process. And, Kennedy said, *consumer information and research* would be improved since he had asked the head of each Federal agency "whose activities bear significantly on consumer welfare to designate a special assistant in his office to advise him and assist him in assuring adequate and effective attention to consumer interests in the work of the agency and to act as a liaison with consumer and related organizations." He also announced a pilot program to make available publications useful to consumers and to provide facilities for the easier purchase of such publications.

The Federal Government has certainly carried through on the publications effort. But, it is somewhat ironic that those special assistants which Kennedy wanted were not finally all put into place until just a few weeks ago, by a Republican President, and over the outspoken objection of professional consumer activists.

We cannot know now just how the transition from one administration to the next will affect President Ford's consumer representation plans. But whatever Carter decides to do about filling all the special assistant posts created by the plans, consumer sensitivity is well established in most Federal agencies. Projects and regulations which center around consumer problems will continue. Career professionals who deal with consumers will still be around, even though program emphasis and job titles may change. Some comfort may be found in President Kennedy's acknowledgment of one such group back in 1962. Of the home demonstration program of the Agriculture Extension Service he said, "it now provides valuable information directly to consumers on product trends, food standards, and protection guides" and recommended its expansion.

Kennedy also asked the Congress to strengthen regulatory authority over foods, drugs, and cosmetics, to require truth-in-lending, truth-in-packaging, and to strengthen laws promoting competition and prohibiting monopoly.



Over the 14 years since Kennedy made those requests the Congress has complied, with mixed results. Just last year the Congress passed some antitrust amendments which address the Kennedy goal of promoting competition and prohibiting monopoly. Very soon after he asked for it the Congress passed legislation requiring that new drugs be shown to be efficacious, and today the Food and Drug Administration is still working on a review of the efficacy of over-the-counter drugs.

President-elect Carter's references to "hidden chemicals" underscored by Kennedy's long ago references to potential hazards in food additives and colorings give encouragement to proponents of such legislation as the Cosmetic Safety Act which was actively considered in the last Congress, and to tightening of regulation of food additives, for which authorizing legislation may eventually be needed.

President-elect Carter did not say "yes" or "no" to consumer class actions in August, but he provided some encouragement to those who want legislation to make it easier for a single consumer to bring a suit on behalf of all others who may have been similarly damaged by, say, price-fixing or a faulty product.

Neither did Carter make up his mind publicly on the need for no-fault insurance, or for a nationwide ban of throwaway bottles. And both these measures have strong supporters who will be calling for congressional action. Neither has he outlined a comprehensive energy program, or said just how he expects a consumer agency to "help me discover agencies that ought to be eliminated."

But he has said enough to make clear to consumer advocates and business alike that he is sympathetic to consumer causes. As these often highly antagonistic sectors of our society ponder the inclinations of this new President to: (1) protect consumers and (2) tighten up Government, it seems to me that they must conclude that the recent trend toward sitting down together to work out solutions must somehow be stepped up so that every industry involved in any way with a consumer issue seeks out and works with those private citizens best suited to showing them the way to a solution.

Already some of the industries who are the center of attack, and who perceive that legislative solutions may be on the way, have begun efforts to solve differences. Tomorrow, in Chicago, the Food Safety Council will have its first meeting. It is to be made up of technical and nontechnical representatives of food and allied industries and of persons from the private sector—on a 50-50 basis. One thing that all of these people know is that it is time to assess from every angle the things that are added to our foods—as well as those foods which are completely fabricated.

The tide may already have turned in official thinking about proving the safety of each and every ingredient which goes into consumable products before it goes on the market. But this joint effort will at the very least, provide some background for legislators and regulators. An industry-sponsored effort is underway to get facts together about cosmetic safety.

No-fault insurance is one legislative effort which has occupied Congress over the past several years. Truth-in-insurance is another piece of legislation which was first introduced in the 94th Congress, and which will come up again in the 95th. And the insurance industry has begun to show signs of wanting to help the consumer better under-

stand the choices to be made in buying insurance before the Congress sets up a system which cuts off innovation. This industry may have noticed that truth-in-lending did that in the credit disclosure area.

Food and cosmetic safety, insurance, and credit are all things which baffle many consumers. There are others. We know what they are.

From the recent election we learned that many voters—who are also consumers—agree that big Government is not necessarily the solution to the problems they face when they go shopping.

Manufacturers and retailers have access to the same clues I have outlined for you today. We have a President-elect and a new Congress which can and will work together to pass some consumer legislation. We have a populace which needs help in selecting food which is safe, insurance which provides the best protection, and credit which costs the least. But that populace is not at all certain that it wants that help to come from the Federal Government.

We also have growing evidence that the notion that consumer advocates are interested only in legislative solutions to the problems they identify is fallacious. Consider this quotation from a recent talk to the National Association of Food Chains by longtime advocate James Turner. He said, "The consumer movement is interested in bringing consumer rights into the marketplace. When those rights are there government need not be active in enforcing them. But when they are absent or actions are taken to violate them, then that creates the vacuum which government will eagerly fill. And consumer advocates will eagerly ask government to fill it. Again, good counsel from an effective consumer adviser can advance the cause of consumers and retailers simultaneously."

Most of this audience fits, in one way or another, into the role of consumer adviser. I cannot tell you what Jimmy Carter or the new Congress will do in January. I can tell you that clues to the kind of consumer advice people need are to be found not only in the few things they have said so far, but also in the unfulfilled goals of those who have gone before. Look not only on the legislative goals that have not been reached, but also on those which have proved to be less than perfect.

Is the credit consumer much better off than he was before truth-in-lending? Is there a legislative solution, or does the solution lie with those who translate the workings of Government and the industry to the consumer?

Will industry now lose the long battle against class action legislation? Last year the Congress passed legislation giving the 50 State attorneys general the right to bring suit on behalf of all the citizens of a State in price fixing cases. A further step it could now take in the interest of redressing consumer grievances is to pass a law making class actions easy to bring to court—giving each of our millions of citizens the right to sue on behalf of all others. This is a consumer redress plan which is greatly feared by industry, because the collective force of it could bankrupt many companies.

It seems to me that another legislative alternative considered in the last Congress is greatly to be preferred by the business community. The Consumer Redress Act would provide funds for pilot programs throughout the country to do such things as improve small claims courts.

There are other possibilities, voluntary ones. When Congress passed the Magnuson-Moss Warranty Act almost 2 years ago, it called for voluntary redress mechanisms to be set up by businesses which would take care of the warranty disputes which were not solvable between the buyer and the seller. It left industry a choice as to whether to set up the redress systems. So far not one has done so.

Consumer redress, food additives, insurance, energy conservation and many other areas are ones in which there is a vast amount of room for voluntary action. Just last week Jeffrey Josephs of the U.S. Chamber of Commerce, who works with an industry consumer issues committee told me, "Everyone's learning that a lot can be accomplished with dialogue and discussion. And he expressed the hope that consumer advocates will continue to be willing to sit down and talk, because "under the circumstances"—and he was talking about the election results—"business will be willing to sit down and talk about a lot of things."

It was interesting to me that I had a similar reaction from Carol Foreman, executive director of the Consumer Federation of America. She said that consumer activists only consider legislative, regulatory, or litigative solution if voluntary ones don't work. She said that the recent election results "Ought to improve our ability to work together."

I'm not telling you anything new when I say that Government needs to know more about how the people out there are thinking, what their needs are. Consumer activists and their counterparts in industry need to know too. The climate is right for interaction. Whatever you do to help improve the consumers lot can only be enhanced by your participation in this process.

## OVERVIEW OF COMPUTER PROGRAMS

(By Ava D. Rogers, Ph. D., Deputy Assistant Administrator, Home Economics,  
USDA)

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Computers have become so commonplace in the last 25 years that most of us have accepted the impact of this sophisticated system into our daily living with hardly a pause to contemplate how things used to be: that is, when new presidents were predicted by clairvoyants or Jimmy-the-Greek; calculators were found in an office but seldom in the hand of busy shoppers in the grocery and discount store; and arithmetic was done with multiplication tables. In every segment of living, computerized information is assisting users to make better decisions based on a broader or more accurate base of selective data. But as educators and potential contributors both to the storage and use of this data, there are questions we will want to raise—some I think of and many more you will raise later, with the panel. Our panel represents an overview of computer programs both through their contribution and their observations regarding the current status of program activity.

There are many computer systems in use by people in business, public and private agencies, education and government, either for record-keeping or problem solving. At least 14 States—possibly more—have systems used actively by Extension, while others have access to a system or are considering making terminals available. Such widespread availability puts at our disposal a resource for assisting families in the decisionmaking process possibly unequalled for educators since the printing press. It presents an exciting and potentially powerful impact for Extension programs. Are we ready to meet this challenge? Do we recognize both its possibilities as well as its liabilities? Are we ready to exploit its use while keeping its overpowering possibilities in reasonable perspective as an educational tool?

Although we have been active in computer assisted instruction almost since its beginning in Extension, in developing programs, we seem to have chosen the slow but hopefully sure route toward sound progress. Some areas of subject matter appear to lend themselves more readily than others, however, in summarizing programs relating to home economics available through the Computer Management Network (CMN) which were recently submitted by Virginia Cooperative Extension Service to ES-USDA, there are 12 in the area of food and nutrition; 26 relating to financial management—2 in energy; 1 each in health and family life education. There is much room for expansion, particularly the least or non-existent categories where families have vital needs for assistance in decisionmaking—home environment including housing, equipment, furnishings, clothing and textiles, health and safety, and human development, are as critical as those in food



and nutrition and resource management. What data can be adapted to specific variables and programmed creatively for individual and family use? An exciting challenge is that of designing and documenting programs which can be adapted to local usage across the Nation.

As we consider the needs of families in Florida and Minnesota—for instance, in housing—how can we achieve this objective thus eliminating needless duplication? There may not be a simple answer to this question, but rather it will raise additional ones. Should there be one or several systems, each specializing in certain data? For instance, Minnesota already has a system designed for massive storage of socioeconomic data drawn from public information, such as the census files of population and housing and the agricultural and economic census. In Indiana, Purdue has a Kellogg Foundation grant to test new concepts. Virginia has been working on a national system for several years. Michigan also has a system which is being used by a number of other States. All of these States—along with South Carolina and Massachusetts with the Virginia system—have been active in programs in home economics areas. How will or should these systems complement one another? As more programs are developed and terminals used, more State systems are being activated and the question of national versus State systems is raised. Would a national system have intense use and be adequately serviced? By whom? Or, can there be an inter-related individual or multi-State system developed with some kind of efficient exchange? By acquiring an account number a State may assess any system either at a base fee or cost/use fee. Is this economical and efficient?

As these decisions are reached—and they will be—let's consider questions related to keeping programs current (remember that local user), errors corrected and data periodically validated. This service requires that a program developer as well as a technician be available for active programs—at whose expense? What standards of quality should programs meet before being accepted in any system? And, what happens when the programmer is no longer available? Computer programs used for recordkeeping possibly have a simpler solution to this type of problem than exists for those used for problem-solving programs. The latter demands that a specialist in subject matter be constantly available, and designing and servicing a computer program consumes time for which proper recognition both in program planning and execution must be understood.

And, by the way, how does this expert or specialist who writes programs for computer use compare with his colleague who writes other types of publications when personnel evaluation time comes around?

It has been said that time is money. Certainly nowhere are we more aware of such a parallel as in computer use. We have alluded to the need for a specialist to develop a program. There must also be another specialist, the programmer who has the technical knowledge for loading it into the computer system. Already we have discovered the two functions do not often reside in the same human body, but the two people must learn to speak a common language for real success! Also, if the program is to serve its purpose, additional training for field staff and other specialists becomes apparent as well as training time required by ultimate users. Most of the current systems are subsidized at some



level by States, often for these types of personnel costs, but how much expansion is possible?

It may be that the user will be expected to pick up the bill. And if the ultimate clientele pays for all the costs of the program, then how will this be calculated? What types of programs will qualify? What length, what content, what audience will we design for? Will the user be willing to wait for batch orders which have a faster, less expensive printout or will they prefer immediate interactive programs even though these are more expensive? Or can we identify the data which is most productive for each category? And how much time can be afforded for this type of one-to-one clientele contact in current educational programs? In the end who decides on what programs are needed—specialists, technicians, or budget officer?

Costs are made up not only of time of personnel, but also equipment, storage of data, and time involved in use of all of the components. Equipment includes the computer center, initial outlay, plus cost per second of use, terminals, reconditioned or new, telephones (connect charge by hour), phone lines (800 for CMN system), transmittal (costs per 1,000 characters and possibly others, but this suggests a few. Storage of data, either instantaneous or that placed on tape for recall, is yet another time cost item. Although all of these costs sound intimidating, often the time of actual use is minute, so costs may well be within reason. To really answer the question of costs, perhaps studies of cost/effectiveness in using computer assisted teaching compared to our traditional methods are needed. We are living in the age of computers, and if we want to be in the vanguard we may need to hurry before our students put down their electronic tennis racquets and start looking for us!

## DATA NEEDS AND VALIDITY OF APPLICATIONS

(By Frances M. Magrabi, Home Economist, Agricultural Research Service, USDA)

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The professional worker (extension agent, teacher, or counselor) who uses the computer for instructional purposes assumes a special responsibility for the validity of the information in the computer output, a responsibility that is more akin to that of the professional counselor than a teacher. This is so because computer output is presented to the client (student, consumer, or family manager) as an individualized response to his particular question or specifications rather than, as in the case of textbooks or informational bulletins, as generalizations and averages that may or may not fit the client's situation. The fact that the computer output may actually be little different from tabular material as published in bulletins or textbooks does not relieve the professional worker of the special responsibility. Provision of the information as a specific response to the client when he queries the computer constitutes a kind of claim that the information is valid and appropriate for that client. The general disclaimer that we find in textbooks or bulletins, to the effect that the information refers to average situations and not necessarily to a given individual, is missing from the interaction between client and computer. The professional worker has a responsibility, first, to select computer programs that provide valid and reasonably precise results for his clients and, second, to help clients obtain and interpret appropriate results and to understand the limitations of those results.

During or prior to the execution of a computer-assisted instructional program, various kinds of information are entered by the client. These are matched or combined with previously stored data, and results are computed for the client. The professional worker must understand and be prepared to assess the validity and accuracy of the data used in the program—not only the personal information and specifications entered by the client but also stored data from research or other sources.

*Client input.*—Some computer-assisted instructional programs require a great deal of input from the client, e.g., personal characteristics, information about the client's situation and needs, or specific kinds of results or output desired by the client. Other computer programs require little or no information from the client. Obviously, the computer results can only be individualized to fit the client's needs and situation to the extent that client data has been entered. Also, appropriateness of the results depends on the accuracy of the client data. If the client fails to understand what data are needed, or cannot obtain accurate information for entry into the computer, or makes errors in entering the data, then the computer output will be more or

less in error. The more client data needed, the greater the likelihood of error.

*Stored data.*—Data can be stored in advance in the computer and used as a substitute for client data. For example, instead of asking the client for his actual expenditures for food, housing, clothing, and so on, average amounts spent by families might be stored and used. Some kinds of data are stored because it is not feasible to obtain them from clients or because they are identical for all clients in a given class. Stored data may be out of date, they may be obtained from a different population than that of the client, they may contain various errors or biases or approximations, they may represent sample means in highly variable populations. These possible errors or biases or approximations may cause the computer results to be quite imprecise or inappropriate to a given client.

#### IMPLICATIONS

Any computer-assisted instructional program should be evaluated for validity and perhaps tested with clients from the population to be served. For some programs, the results of systematic and objective tests may be available, and the professional worker can use the program without further testing. For many programs, however, test results are not available or may not pertain to the client population. Before using such programs, an evaluation must be performed by the professional worker in order that he may identify and understand limitations of the program.

## ADAPTING A COMPUTER PROGRAM

(By Irene Hathaway, Extension Specialist, Family Resource Management,  
Michigan State University)

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### THE MICHIGAN EXPERIENCE

Adaptation of a computer assisted program is a logical step after a review of available programs indicates the need for this method and a concern develops for meeting the needs of a particular audience. A year ago in Michigan, we had a computer assisted program, Family Financial Management developed by a team from agricultural economics active in the Telplan System and Bethel Schmidt, the Extension Home Economist in St. Joseph County. We also had received a report and packet of materials of the PLAN program developed at Clemson University which included a 2-stage program in money management. A basic problem of our urban audiences was the impact of inflation coupled with the highest unemployment rate in the United States. Families were aware of a need to change budget patterns, while at the same time had constraints from past decisions particularly in housing, transportation, and installment debt.

Our immediate concern was meeting the needs of families having to make changes and helping them to see alternatives. The success of the computer programs, both in St. Joseph County and in South Carolina indicated that a computer program could be an effective tool for reaching our audiences. Thus we adapted two ideas into the framework of needs for urban families in Michigan.

We evaluated the format and components and adapted the short program, Speedy Spend, to run in metropolitan shopping malls. Since Clemson used South Carolina expenditure data, it was necessary to form a new data base appropriate for Michigan. The base was developed from a series of sources including the Bureau of Labor Statistics, *Consumer Expenditure Study, 1960-61* and *Preliminary Consumer Expenditure Study, 1972-73*; University of Michigan, *Survey of Consumers, 1971-72*; and energy cost data for Michigan. Integrating these studies gave us a data base to start an awareness program on budgeting with families.

We used the same basic program format as Speedy Spend with the elimination of the category of public transportation, which has very limited application in Michigan, and the addition of a savings category.

The second stage involved taking the Family Financial Management program and using the format developed by Clemson in the design of the materials and the mail-in feature. This allowed us to increase the flexibility for the extension home economist and overcame the questions of confidentiality of sharing personal financial information.

Thus using our already deveoped Telplan system, we were able to build a program, Steps into Spending, which was piloted in 13 malls within 3 months after conception.

#### CRITICAL POINTS IN ADAPTATION

The critical points in adaptation and the tasks involved must be decided and implemented with the group of professionals that will be using the program with clientele groups. They are:

1. Determining the needs of the local audience;
2. Specifying the objectives that a computer program can satisfy that are not currently satisfied through other program methods;
3. Evaluating the data base of an available program and deciding whether to use the base, revise it, or devise a new appropriate and valid data base;
4. Evaluating the presentation format including:
  - (a) How the audience will interact with the computer;
  - (b) How the audience will interact with the professional;
  - (c) Where the audience is located;
  - (d) What material is needed for gathering necessary information from the client and for explanation of the output; and
5. Reviewing uses and evaluations of originators and previous users of the computer program.

Adaptation then continues with the necessary steps of any computer program of:

6. Determining (if a new system is used) the basic problem solving capabilities of the system;
7. Planning and implementing the idea to program language;
8. Testing and retesting for area of possible error; and
9. Evaluating and revising the program to meet audience changes or changing needs.

Adaptation builds on the resources already invested in developing computer assisted programing by expanding the possibilities for meeting specific needs. Basic programs that have been conceptualized, implemented, and tested can be multiplied manyfold by a adaptation which tailors them for local situations.



## COST OF COMPUTER PROGRAM DEVELOPMENT—TIME AND MONEY

(By Muriel S. Brink, Extension Nutritionist and Associate Professor, Agricultural Extension Service, University of Minnesota)

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The development of any educational resource requires an investment of time and money. Calculating the precise cost for developing a computer program is as difficult as calculating the precise cost of developing other educational resources. Today, I will delineate tasks which require time and budget considerations.

The decision to develop a computer program should be made after considering these factors:

1. Capabilities of the computer system versus other media;
2. Subject matter of the potential program;
3. Needs, interests, and abilities of intended clientele;
4. Projected use of the program; and
5. Availability of the computer system to the intended clientele.

### TIME

The total time required to develop a computer program varies with topic, availability and adaptability of data bases, experience of the individuals, and number of unanticipated problems. Based upon my experience with computer program development, I have divided the tasks (responsibilities) between the subject matter specialist and the computer programmer as follows:

#### *Subject matter specialist:*

1. Determines objectives;
2. Consults with programmer throughout the development;
3. Justifies use of computer versus other media;
4. Determines output format;
5. Develops flow chart;
6. Assists with debugging of program;
7. Develops additional supporting materials—that is, instructions for preparing input sheet, input sheet dictionaries, if needed, and other supporting materials;
8. Does subject matter documentation which includes citing the sources of various data bases and a listing of assumptions which were made in the development of the program; and
9. Tests program with potential users.

Many of these tasks are the same as those required for the development of any type of educational or decisionmaking resource.

#### *Computer programmer:*

1. Consults with the subject matter specialist throughout the developmental process;

2. Does the computer programing—this means coding the program in appropriate computer language and implementing the program;

3. Debugs the program; and

4. Does the documentation of the computer program—that is, provides a detailed explanation of the internal operation of the program. This gives another programmer the necessary information to adapt or change the programs.

I have found it advantageous to have a computer programmer on staff as part of the team. The programmers employed by the Minnesota Agricultural Extension Service have an understanding of the mission of the organization, and, therefore, can assist in the development of programs which meet the objectives. Also, I've been able to develop programs without becoming an expert in the various computer languages and specifics of coding a computer program. It is also comforting to know that when problems arise, there are individuals available to assist with the troubleshooting. Knowing the computer programmers are accessible increases interest in the development and use of computer programs.

#### MONEY

Salaries and/or wages and computer costs are the two major budget considerations. If the individuals are already employed by the organization, the salary or wage is not an additional cost but rather an allocation or redistribution of the individual's time. However, if services of a programmer are needed, the hourly rate would depend upon the person's experience. The quoted hourly rate usually includes the programmer's services, access to other consultants, and other supplies necessary for program development. The rate would not include computer time.

Computer costs include the cost of terminal and computer charges. Terminals can be leased or purchased. Before making a decision regarding the terminals, you may want to check to see if others within the organization have a terminal available and if you might work out some sharing arrangement. Computer charges vary among systems. Some computer systems offer several options to users. After reviewing the options, the user decides which option is best for the particular situation. For example, the University of Minnesota Computing Center provides these options:

1. *Connect time*.—The University user would pay a \$10 per month fee plus \$2 per hour connect time plus 20¢ per month for each 100,000 characters stored;

2. *One-half port*.—The University user would pay \$100 per month which would include unlimited connect time, and storage of 300,000 characters. There would be an additional fee for storage beyond the 300,000 characters.

3. *Dedicated port*.—The University user can lease either a 10-character per second or a 30-character per second port. The monthly rate varies from \$225 per month to \$275 per month, depending upon the speed. Included in the monthly rate is unlimited connect time and storage for 600,000 characters. Again, there is an additional fee for storage of more than 600,000 characters.

An advantage of the fixed rate is that users can budget more accurately. The selection of an option may depend not only on your in-

tended use but also the extent to which others within the organization plan to use the computer system. The message I am trying to emphasize is find out who else is involved in computer application.

In summary, I would like to reemphasize that when developing a computer program, it is important to: (1) identify objectives, (2) know the functions the computer will perform, and (3) establish a good working relationship with the computer programmer.

While I have not given specifics, I hope the identification of the cost factors in terms of time and money will help you estimate the cost of developing a computer program in your area. I am convinced that this approach is worth the investment.

## MANAGING COMPUTER PROGRAMS

(By Ann E. Thompson, Associate Dean, Extension Division, VPI & SU,  
Blacksburg, Va.\*)

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In managing computer programs, Virginia looks at the people and machine involved; the public, the user agents, the subject specialist, the computer specialist, and the computer. The system is an educational method used in educational programs.

In this context, I will relate our management experience with the Computerized Management Network. CMN is an interactive system of 60 programs of primarily an agriculture and family resources subject matter base. All but two information retrievals use the problem-solving approach.

The general public is our audience. Programs on the system are determined by educational programs that the computer can assist in the educational process. It is important that programs be easy to operate, that output be easily understood, and that runs be relatively low in cost.

Extension agents are the primary operators of the system. Our programs are simple, logical, understandable, and easy to use. We emphasize the training of agents in use of terminals and in giving ideas of how programs have been used in local educational programs.

The subject matter specialist is the source of ideas. Specialists contribute ideas that supplement and facilitate local educational programs. We provide specialists with computer programming support and development funds. Subject matter specialists do sometimes have to be encouraged to keep their programs current.

The computer specialist keeps the total system operating and provides technical assistance to subject matter specialists and users. Computer specialists and subject matter specialists have a responsibility to learn from each other for the system to work. The system functions best with staff who relate well to the policies of extension and can work with users.

The computer can do almost anything we tell it to do. It is the computer specialist's job to translate the user and subject specialist's wishes into computer language. We realize there are many ways to program; some are good, bad, cheap, or expensive. In our management, we have an extension leader to assist with these choices and decisions.

For good management, communications and feedback must exist at all levels of the computer operation. Advisory and user committees are techniques we use along with periodic newsletters.

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\*Information was supplied by James F. Johnson, extension leader, and Janet C. Faith, extension specialist, Management Information. For further information on the Computerized Management Network, contact Janet Faith at 127 Smyth Hall, VPI & SU Extension Division, Blacksburg, Va. 24061, or phone 703-951-5184.

## AN INTERDISCIPLINARY APPROACH TO COMPUTER ASSISTED INSTRUCTION

(By Veronica Carmack, Associate Professor of Home Economics, Clemson University Cooperative Extension Service, Clemson, South Carolina)

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For the past 2 years, we in South Carolina have been involved with a computer assisted interdisciplinary counseling program in family resource management. The key, I believe, to our successful program is the interdisciplinary approach. At the beginning of our program we selected two-person teams (men and women) from 10 representative counties. These agents were chosen on the basis of expressed interest in the project and previous training in the area of family money management. Most of the people chosen had already participated in 1 week of intensive money management training conducted the year before the project began. Joint training of home economists and agricultural agents wasn't new to many of them because we had started this practice a couple of years earlier.

It has always been my contention that financial management is a matter that deserves the attention of the whole family. Home economists have been teaching homemakers how to manage their money for years. Now we need to reach their husbands as well.

Some men may react more favorably to a man teaching money management than to a woman. Others may not have a preference. County agents should be encouraged to participate in money management classes. The training they have received from agricultural economics specialists may provide new insights into solving family financial problems.

Computer programs can be the common link between many disciplines. There are numerous advantages in working together.

As I see it, one advantage of the interdisciplinary approach is that others will begin to recognize how varied the home economics program really is. An awareness of our expertise will bring with it greater respect. As professionals we should actively pursue opportunities to work in an interdisciplinary way. By joining forces with others the total educational effort can be strengthened.

Agents involved in the computerized management program have reacted very favorably to it. They feel they are providing a valuable service to their clients. Without a great deal of time or effort they are able to provide individualized financial guidance. Computerized budgeting allows them to discuss complicated calculations with speed and accuracy. The possibility of error is greatly reduced. Our main audience has been found at malls and shopping centers. This contact with clients gives agents immediate and positive feedback. We have observed that agents have increased their own self-confidence as a result of this new approach to teaching a difficult subject.



Other counties who have not yet participated in the computer program are looking forward to an opportunity to try it. Agents are very interested in the future of computers. Those who have tried it really like it.

Our work continues to point up new areas which will benefit from computerized teaching. Estate planning is complicated. In the past this subject has been taught by agricultural economists and home economists, but not always together. Here again we are working with an interdisciplinary approach in mind. We have a new program called Estate Planning Analysis. We are in the process of developing teaching materials to complement this new computer program. Home economists have knowledge in this area but the laws are changing and we need to keep up to date. Homemakers are asking many questions concerning their rights under the new tax laws.

For years we have had informal agreements with other specialists to share information and occasionally to help teach a special class. Agricultural engineering and housing, food science and nutrition, textile science and clothing, and agricultural economics and marketing with home management. Team teaching isn't really new but now we are beginning to see the interdisciplinary, or problem approach if you will, being translated into everyday work at the county level. This is real progress.

From my point of view, this is the way it should be and I'm glad we have taken this approach in South Carolina.

## PLANNING AND USE OF COMPUTER PROGRAMS— REACTION OF USERS

(By Patricia M. Tengel, Family Resource Management Specialist and Associate Professor, Cooperative Extension Service, University of Maryland)

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Reactions of users can best be described in two categories. First-time reactions and reactions of those familiar with computer-assisted instruction. Currently the reactions of first-timers are by far the most numerous. Most users are pleased with their first experiences. The novelty of a terminal responding to the user is fascinating to most people. Later the user is amazed at the amount of information made available to him in a very short timespan. The user becomes thoughtful as he checks the accuracy of the information presented in terms of his own life experience. The best programs for introducing the idea of computer-assisted instruction are those which require little input information and yield rather easy to understand printouts requiring little, if any, interpretation or additional educational instruction from the person in charge. Users really feel good about themselves when they can interpret their own printouts. Many are initially hesitant to try out a program for fear the resulting information will not be understood. The availability of a staff member in addition to the terminal operator to explain printouts when necessary is important to the success of a demonstration of computer-assisted instructional programs.

Examples of programs which lend themselves well to a demonstration of the art include Speedy Spend, developed in South Carolina and Auto maintenance and upkeep developed in Virginia, both are available on the network. User feedback is frequent. With Speedy Spend, families look at the estimated budget and relate it to their average costs. Estimated costs are based on South Carolina data which may not be especially applicable to other areas of the country. For example, housing costs appear to take a larger portion of the pie in the Northeast. When a Speedy Spend printout is handed to a man, he tends to compare notes with a male friend nearby. Women, on the other hand, tend to zealously guard the privacy of the figures of the Speedy Spend printout. I will not speculate on the meaning of these reactions but they are interesting. A recurring response to the auto maintenance program, by owners with 1968, 1969, and 1970 cars, the most frequent kind analyzed, is that the operating costs are so low that the owner decides to hang onto the car for another year or so. Here we see evidence of an owner being assisted by the computer in his decisionmaking process.

Now let's turn our attention to users in the second category or those who have some familiarity with computer-assisted instruction. The main difference between the two groups is that the controlling factor is not the novelty of the interactive terminal. These users begin to realize that they could compile the information in the printout on their

own although it might take them many hours of hard work to do so. Those who are more astute realize that the purpose of computer-assisted instruction is to provide information and assistance in a decisionmaking process. Others must be made aware that this is the purpose of the computerized exercise.

There are several programs written to take the user through the problem solving process. Most of these programs are best used as an instructional tool in combination with more traditional educational methods. Examples of these programs are "Can We Afford It?" and "Budgeting for Retirement" (USDA)—financial management programs—and FOINANA (Minnesota) and "Rcall" (Virginia)—nutrient analysis programs. These programs require a detailed input including special codes and yield an extensive analysis. A user must be convinced the effort required to compile and code all of the needed information is worthwhile. Users generally require assistance in not only gathering the needed information and putting it in the form the computer understands but also in interpreting the printout to gain maximum personal benefit. This assistance can be successfully given in a group setting. "Can We Afford It?" illustrates one sequence. This program requires the user to reveal family composition, income, liquid assets, credit sources and amounts, and expenses in 15 categories. In return he receives a tabular printout summarizing income, expenses, savings, debts, and taxes for a period of 5 years including the effects of inflation. When sample printouts are shared with prospective users, a first reaction is often, "the printout is too complicated, I can't learn to read it." The problem is most people are unskilled in reading tabular data. This is a teachable skill. In a group setting it takes another 1 to 1½ hours for users to understand and complete the input worksheet. At this point some potential female users refuse to submit the information indicating it is too personal. Another reaction is "we're doing fine with our money; the computer can't help us." Many women who gave these responses publicly, later said privately their husband would object or they didn't know what their husband earned so they couldn't provide all the needed information. Users also show fears of "big brother is watching." Every effort must be made to help people understand that the financial information they are providing is not stored in the computer and that their privacy will be maintained.

When the potential user is in financial difficulty and appealing for help, resistance to providing all of the needed information tends to break down. This appears to be directly related to the policies of most financial counselors who refuse to help unless the whole financial picture is revealed. One caution in the use of "Can We Afford It?" in order to receive a meaningful printout a family must have a balanced budget. Users are generally very pleased with the "Can We Afford It?" printouts. Many families never realized if they saved regularly how fast their savings would grow over a 5-year period. Those who were in debt discovered they, too, could have accumulated savings if they didn't immediately commit themselves to another credit contract. Homemakers are amazed to see the effects of inflation on living costs over a 5-year period. Many asked if income would keep pace.

In conclusion, users respond enthusiastically to computer-assisted instruction. We as professionals are just in infancy in understanding

the full potential and impact of this instructional method on our programs and on our ability to reach people. Although the cost of running many of these programs is still prohibitive for many State extension services, further innovation in the computer field should bring these costs within reach over the next few years. In the meantime our experimentation should continue full steam ahead.

## FLEXIBILITY TO MEET CHANGING HOUSING NEEDS

(By Jerry O. Newman, Research Engineer, Rural Housing Research Unit,  
Clemson, S.C.)

Because of the cycle of family life, varying social and economic statuses, different religious beliefs, and many other factors, housing needs are in a constant state of flux. These changing needs and a mobile society have prompted the Rural Housing Research Unit to design houses that will allow more flexibility and economy in initial construction and make postconstruction changes easier and less expensive than they are currently.

### PROTOTYPE FLEXIBLE HOUSE

In 1972 and 1973, a prototype, named "the First-Generation, Panelized, Pole-Frame House," was built at Romney, West Virginia. In this first attempt at panelization, only about 50% of the house was panelized, the remainder being of standard pole-frame construction. The fundamental idea was to provide a pole frame that would serve as the basic structure and would support the panels needed to enclose the remainder of the house. Designs that would allow rearrangement of interior space were considered. However, more emphasis was placed on allowing one to make customized layouts, to salvage removed parts, to include modular kitchen and bath units, and to economically update the house.

The first-generation house shown in figure 1 met some of these goals and served as the basis for accomplishing the remaining goals. Being an economical unit, it can fulfill the needs of many low-income families. However, it showed that additional elements of the house needed to be panelized, and it demonstrated the importance of developing a system that is simple and easy to assemble.

The pole frame provides the basic structure that supports the roof independently, providing a clear span area, and allowing the walls and partitions to be nonload bearing or curtain panels.

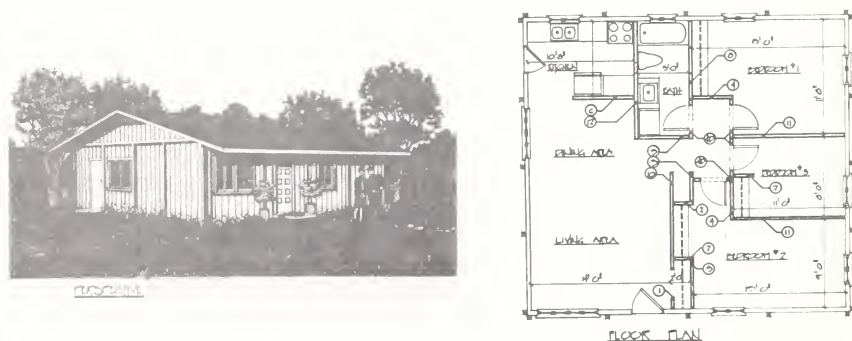


FIGURE 1



The poles of a pole-frame structure are normally set in holes and held in position by tamping or packing the earth around them. For this structure (figure 2), however, the poles were placed in a gravel-filled ditch extending around the entire perimeter of the structure and then attached to the pressure-treated wood-foundation panels skirting the crawl space between poles (figure 3). The continuous ditch provided drainage, and the solid concrete blocks provided a level base for the structure. Once the level or known elevation for the base of each pole was established, all parts of the house could be precut or premanufactured.

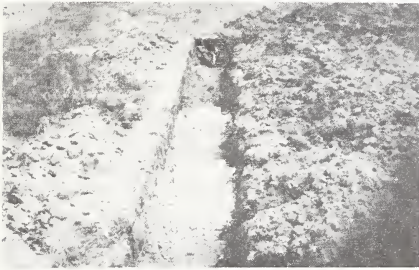


FIGURE 2



FIGURE 3

The pole frame was assembled on the ground and fitted into place in units of 3-5 poles as shown in figure 4, thus eliminating the need for cutting or knocking the tops of the poles in place.

The poles were supported laterally by attached foundation panels which were buried in the soil, and which also formed the enclosure for the crawl space. The foundation panels did not support any vertical loads in this first house.



← FIGURE 4

FIGURE 5 →



A beam made by 2 by 8's and 2 by 6's (figure 5) spans the top of the poles and forms a load-carrying frame around the top to support the roof trusses, which were spaced 2 feet on center.

The floor was supported by 2-by-6 floor joists (figure 6) spliced to extend the length of the structure (32 feet). These floor joists were supported by four main beams across the width of the house.

Walls and partitions were premanufactured. Several kinds of panels were compared to determine their functional and economic value. Figure 7 shows factory-built panels extruded from polyurethane foam. Eight feet tall and four inches thick, they were cut into 8- and 16-foot lengths before they were shipped. Each panel was finished on the inside with panel board and on the outside with a heavy kraft paper. Two-by-four aluminum studs were inserted at two-foot intervals along the length of the wall.

The cost of the panels was 75 cents per square foot in 1972. Windows and doors (figure 8) were easily installed in these nonload-bearing panels by cutting a hole, inserting the window or door, and adding



FIGURE 6

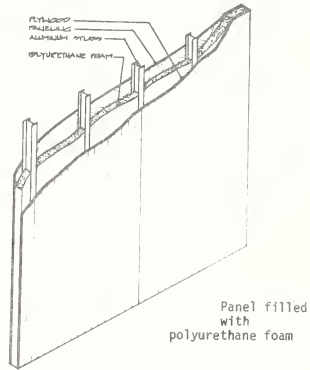


FIGURE 7

the trim. No special framing was required around the windows because the walls were non-load bearing.

Other panels were framed with 1 by 4's or 2 by 4's (figure 9). In some cases the framing was vertical studs and in others it was horizontal girts. They were finished in the conventional manner. With 4 inches of fiberglass insulation, the panel cost was about 40 cents per square foot. These panels were nonload-bearing, however, and needed minimal framing to stabilize the opening for doors and windows.

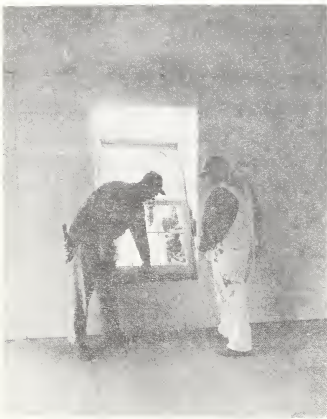


FIGURE 8

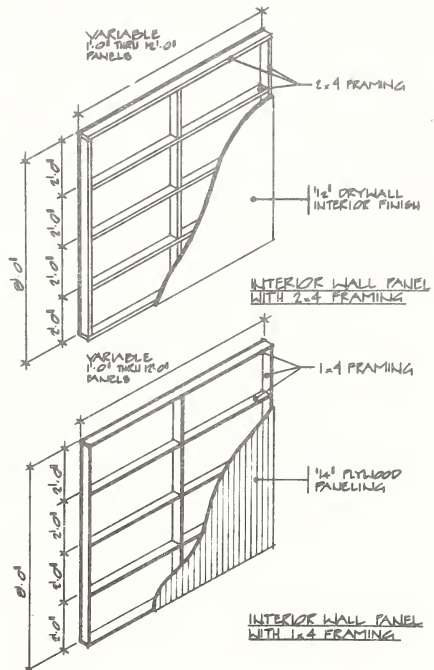


FIGURE 9

## INNOVATIONS AFTER FIRST-GENERATION HOUSE

Several ideas were generated as a result of the construction of the prototype house and as plans were developed for a second-generation house.

The perimeter beam (figure 10A) that tied the tops of the poles together extended below the ceiling about 8 inches, making it difficult to insert a full-height kitchen or bathroom module.

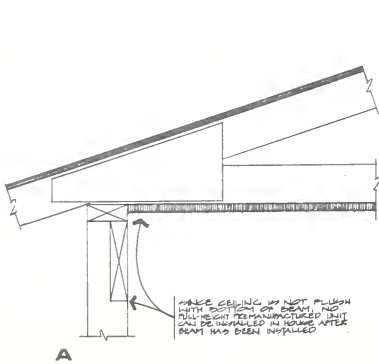


FIGURE 10A

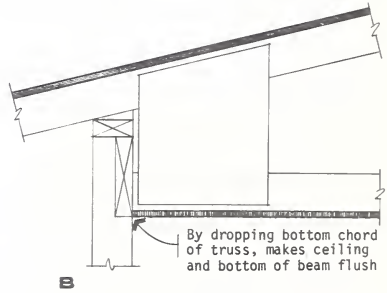


FIGURE 10B

To overcome this problem (figure 10B) the poles were lengthened 8 inches, thereby raising the bottom of the beam to ceiling height. This change required a new roof-truss design to drop the bottom chord of the truss between the perimeter beams and to lower the ceiling to the lower edge of the perimeter beams.

The new roof truss, named "dropped-chord roof truss," has several additional features. Figure 11 shows how the bottom chord of the truss fits between the perimeter beams where it is easy to fasten with 16d or 20d nails. Since these roof trusses fit between the perimeter beams, they automatically space the sidewalls at 2-foot intervals along the length of the house.

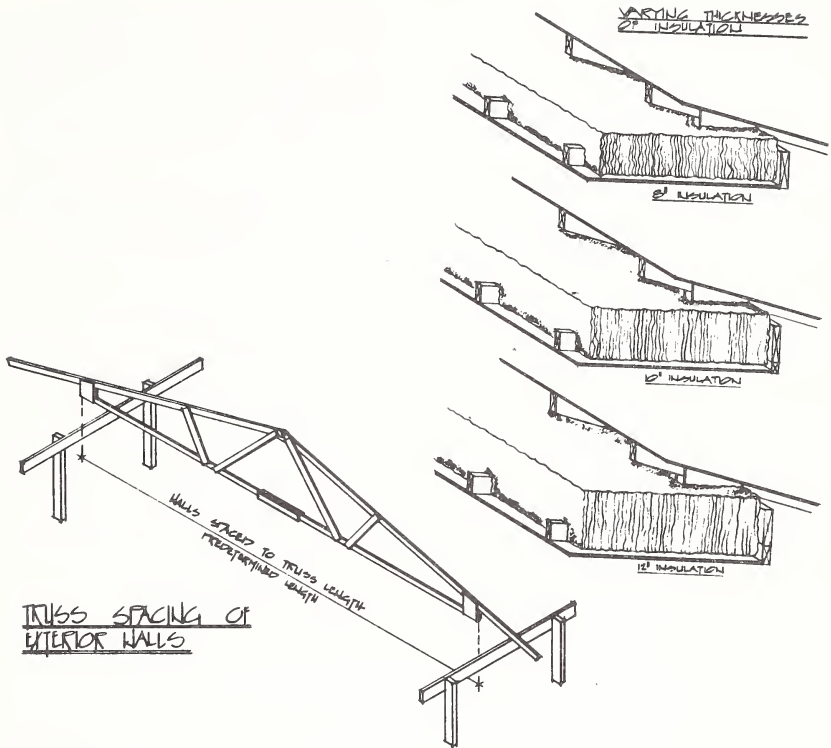


FIGURE 11

Probably the most important feature of the dropped-chord roof truss is the insulation pocket created by the dropped chord, the perimeter beam, and the ceiling. The chord can be dropped 6, 8, 10, or more inches, depending on the amount of insulation being used.



The foundation panels used in the first generation house were crude and poorly constructed. Figure 12 shows the improvements made in the foundation panels. A 2-by-4 wood frame was designed, using a double 1-by-4 top and bottom plate with staggered joints, to give the plywood skin full support. The 1-by-4 framing member was projected 18 inches onto the adjacent panel to provide a secure tie between panels.

Next, the bottom 1-by-4 was replaced by a 1-by-8 that served as a footing for the foundation. This footing board was lowered  $\frac{3}{4}$  inch so that it would fit under the plywood skin rather than behind it.

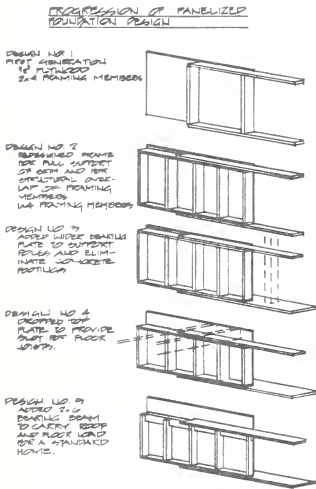


FIGURE 12

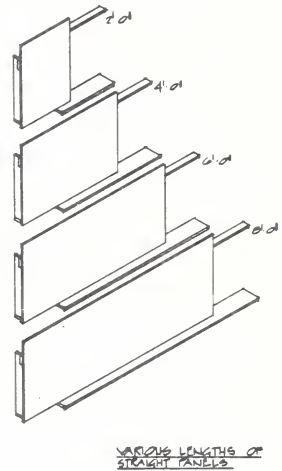


FIGURE 13

In another change, the top plate was dropped  $7\frac{3}{4}$  inches, thus providing a ledge for the floor joist to be fitted to the panels. (The floor joist must be placed directly over the vertical studs in the foundation panels.)

To eliminate the danger of failure if the floor joist was placed between the vertical foundation panel members, the lower 1-by-4 in the top plate was replaced with a 2-by-6 notched into the tops of the vertical members. This design is satisfactory for one-story, 32-foot-wide structures, with a snow load of 25 pounds per square foot. A heavier member or closer spacing of foundation studs may be required for wider or multistory houses.

The foundation panels were built in 2-, 4-, 6-, and 8-foot lengths (figure 13) along with an inside and an outside corner panel (figure 14), making a total of six panels in the system from which a designer can fit a foundation of almost any shape. Each panel has telescoping joints that can be extended as much as 10 inches (figure 15), allowing for the fitting of irregular lengths of wall.

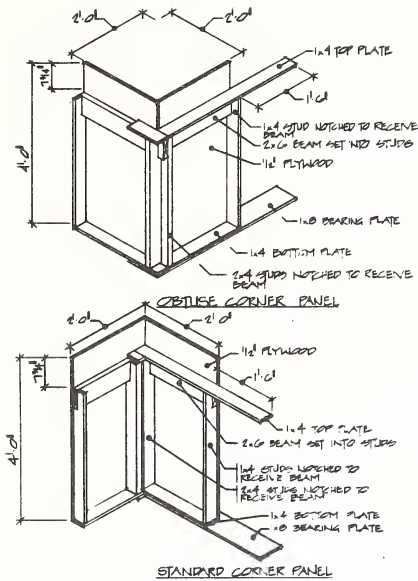


FIGURE 14

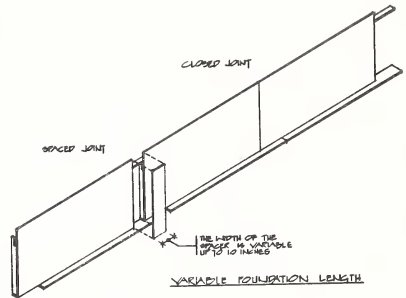


FIGURE 15

Two additional changes in the panel design were necessary. Because potential manufacturers objected to notching the vertical 2 by 4's to fit the 2-by-6 member, the 2-by-6 and the 1-by-4 that formed the top plate were replaced with two 2 by 4's laid flat and staggered similar to the arrangement of the 1 by 4's in designs 2, 3, and 4 (figure 12). Because of the reduced strength of this top plate it was necessary to reduce the vertical stud spacing to 16 inches on center.

Because the 1-by-8 footing was fragile, it was replaced with a 2-by-6 and because of the difficulty in fastening the footing to the bottom of the panel, the entire footing was moved sideways and raised so that the plywood skin overlapped the footing, allowing nailing from the side similar to the fastening of the bottom 1-by-4 in design No. 2 (figure 12).

The interior beams for supporting the floor were also panelized, packaged into 8- and 12-foot lengths and designed so that they could fit against the foundation at any point along its length. Figure 16 shows the end span of these interior beams. Beginning at opposite sides of the structure, each end package makes up 12 feet of beam. They are then lengthened by 8-foot increments until the remaining length is short enough to be joined by a variable-length center package.

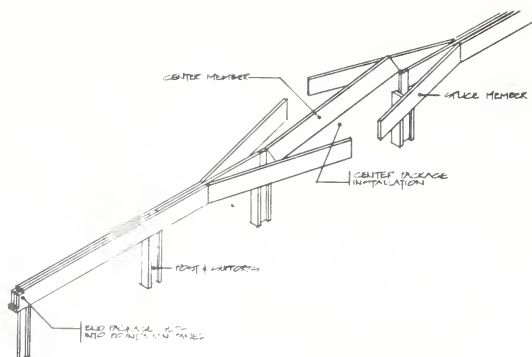


FIGURE 16

The beam made from three 2 by 8's with supports 8 feet on center will carry a 50-pound floor load across a 16-foot span. If shorter spans are used, then lighter beams may be designed.

Some preliminary work has been done to develop 2- by 32-foot and 1- by 32-foot floor panels. The panels must weigh less than 300 pounds and be strong enough to span at least 4 feet under design load.

The most recent work on the panelized system has been on a wall system named a "split-frame wall system."

Two lightweight wall frames are placed parallel and back to back, with zero to several inches of space between them. The exposed side of each frame would then receive an exterior or interior finish.

The split frame wall system is extremely versatile. It is a part of the pole-frame panelized system, but it can also be utilized in the rehabilitation of old houses. The interior panels can be placed over portions of the walls for insulation and decoration, and the exterior panels can be added over the exterior walls where the weatherboard has deteriorated.

The split-frame wall designed for the second-generation house has an outside frame made of 1 by 4's (figure 17) and an inside frame made of 1 by 2's with a 2-inch spacing between them. Corner panels that will turn in either direction have been designed for both the 1-by-4 and 1-by-2 frames.

The outside frame has a  $\frac{1}{2}$ -inch plywood finish, and it is therefore easy to insert spacers at any joint. The interior frame may have a patterned finish that would be interrupted if a narrow spacer strip were used. Therefore, all interior spacers should be inserted at windows or doors where a 12-inch-wide cover strip or molding was designed to fit on each side of each door and window panel. Spacers on short wall panels 1 to 11 inches in length can be placed behind each such molding on either side of each door or window.

The window and door panels are standard, single-wall panels (figure 16), 4 or 6 feet in length, and each window or door interrupts the continuation of the wall.

In order to achieve maximum versatility of the wall panel system in the panelized house, the foundation panels can be placed either inside or outside the pole frame

With this change, the floor extends through the pole frame and provides a base to support the wall panels outside the pole frame. A designer can thus expose the poles on the inside or the outside, or enclose them within the walls.

The incorporation of closets or other storage units into the exterior panels is being considered to provide additional low-cost space outside the floor area to provide additional wall insulation by clothes and stored items, and to leave more floor space available in the rooms.

Several other features of this housing system remain to be panelized, for instance, a panelized roof system including solar collectors, a modular bath or kitchen that could be placed easily, and electrical and plumbing systems that would be compatible with the features of this system and accessible for easy repair.

Of course, other features need to be developed. Along with new developments, each of the features described here will be redesigned and improved to meet the goal of a low-cost, easily assembled system for house construction.

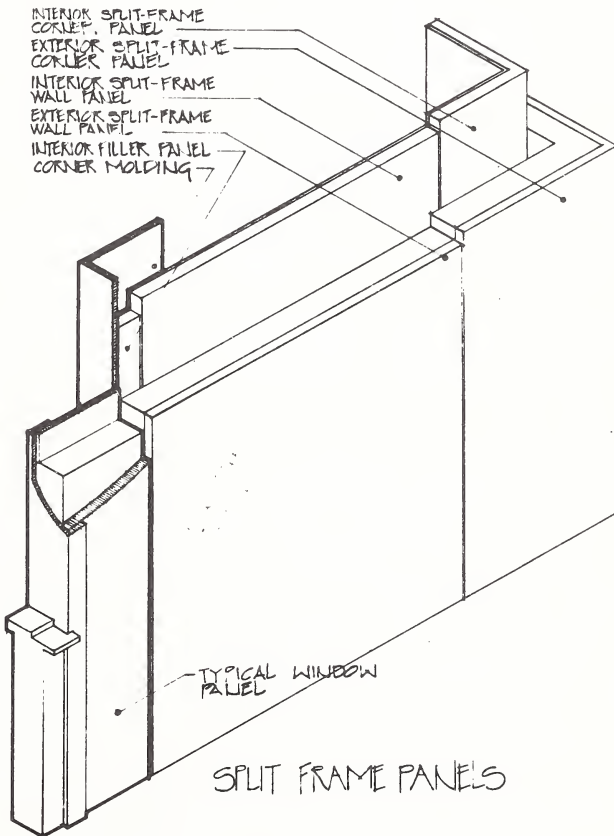


FIGURE 17.—Schematic showing split frame wall panels and how they are assembled. The window and door panels for the second-generation house are not split frame, but a special molding provides for transfer from split panels to single panels.

The economy and low cost of this system is a product of the standardized panel approach in which the same standard panels can be mass produced by low-skilled labor, the flexibility which allows many different sizes and shapes of houses to be built from the same stock of parts and the reuse or salvageability of used panels. Panelization in itself does not indicate economy, but mass production of panels will reduced labor cost and provide employment for low-skilled individuals.



## HOUSEHOLD ENERGY ADJUSTMENTS

(By Richard B. Smith, Agricultural Economist, Economic Research Service, USDA)

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The oil embargo of 3 years ago and subsequent publicity about the precarious state of our energy resources shocked Americans into the realization that the era of abundant supplies and low prices had ended. Although the energy shortages appear to have subsided, at least temporarily, prices for residential fuels and gasoline have increased sharply. Between 1970 and 1974 prices of electricity, natural gas, fuel oil and LP gas used in households increased an average of 65 percent while use on a Btu basis declined about 10 percent.

Since energy is an input into almost every household function, these changes in price and use suggest significant changes in lifestyles and possible changes in demand for consumer goods and services, including food and fiber products. In our energy study four questions were addressed:

1. What types of adjustments have occurred or might occur in households as a result of higher energy prices?
2. Who is or might be making energy-related adjustments?
3. What is the impact on demand for food and fiber products and related appliances?
4. What are the implications for the food and fiber sector and policymakers?

Information and data for this study were collected this spring by personal interview in over 1,400 households in the 48 conterminous States using a national probability sampling design.

### TYPE AND EXTENT OF ENERGY ADJUSTMENT

Compared with 1974, three-fourths of the respondents indicated that higher energy prices had resulted in some type of energy reduction in their households. Lighting and heating were most frequently mentioned with slightly over half of the households reducing lighting. About the same proportion were willing to tolerate some environmental discomfort in the colder months and reduced home heating. Likewise, 40 percent of the households with air conditioning or 21 percent of all households reduced the use of this large energy user during the warmer months. Only 9 percent indicated they curtailed the use of energy-using household recreational items such as TV sets, radios, and stereos.

Higher energy prices also affected household laundry activities. Forty percent of households with dryers, 16 percent of all households, reduced the use of dryers. Temperature settings on hot water heaters were reduced in 14 percent of the households. This adjustment does

cause some questions about possible adverse effects on hygienic conditions in the household and on its members.

In the kitchen, the most common adjustment was to reduce the use of ovens—17 percent indicated such a change. Other cooking methods were also affected, though less frequently. Eight percent reduced the use of specialty cooking appliances such as toasters, electric skillets, and the like, and 6 percent reduced stovetop cooking. Eleven percent of the households or one-third of all households with dishwashers also reduced the use of this appliance.

Fortunately, adjustment of temperature settings on refrigerators were seldom mentioned. In an earlier USDA study, it was found that in one-third of the households with refrigerators, temperatures were at 45° F. or higher. Further adjustments in this direction could lower food quality and possibly increase the incidence of food poisoning from bacterial contamination.

Discontinuing the use of freezers or raising the temperature settings were seldom mentioned. Only 2 and 3 percent, respectively, indicated they had made these adjustments because of higher energy prices.

Higher gasoline prices apparently didn't have a large effect on household food shopping habits. Only 2 percent of the respondents, located primarily in rural areas, indicated they had reduced their frequency of food shopping trips to save on fuel. However, 6 percent of the households indicated they had shifted their food purchasing to stores located closer to their homes to reduce gasoline use and costs.

A hypothetical situation was presented to respondents about future energy prices. Each was asked what energy-related adjustments would be made as a result of an increase of 25 percent in energy prices.

Approximately the same proportion of households that had made adjustments would make additional changes to reduce energy use. But there would be some changes in the types of adjustments. Compared with 1975, more households would reduce the use of specialty cooking appliances, clothes dryers, and recreational items. Home heating and lighting would still be the most popular adjustments. However, fewer households would make additional reductions in home heating and lighting, and fewer would reduce stovetop and oven cooking. This indicates that further price increases alone may not result in substantial reductions in energy use. About one-eighth of the respondents didn't know what additional adjustments might be made.

#### WHO MAKES THE ADJUSTMENTS

One might speculate that the proportion of households making energy-related adjustments would decrease with increasing income. But this was not the case.

Higher income households were more likely to have made adjustments and would more frequently try to make further adjustments with increasing energy prices than low-income households. For example, almost two-thirds of the households in the \$15,000 to \$24,999 annual income group indicated they had made reductions in lighting and home heating compared to 41 and 35 percent, respectively, of the households with incomes below \$5,000 (table 1). Similarly, a significantly higher proportion of this above-average income group reduced the use of the dishwasher, hot water heater, clothes dryer, and air

conditioner than the under-\$5,000 income group. In terms of households making adjustments, only 57 percent of these low-income households made any, compared to 88 percent of the higher income group.

Closely related to income levels is the number and variety of large and small appliances in the household. As income levels increased, the inventory of appliances increased correspondingly. Consequently, higher income households have more adjustment alternatives. They may also have more opportunities to adjust heating and lighting in areas of the home not occupied frequently because of larger living quarters.

Age was another important factor. The most adjustments were made by the lower middle age group and the least by the elderly. Those 65 or older resisted changes in lifestyles (table 2). Unlike younger households where much time is often spent outside the home, elderly persons often spend much time at home, and life's satisfactions are more directly affected by reductions in energy use. Half of the elderly households didn't make any adjustments, and a further 25-percent increase in energy prices would not provide the incentive for a significant number of this group to make adjustments.

Education also appears to be an important factor, although some of the observed differences may be related to income and age. As the educational level of the respondent increased, more energy-reducing adjustments were made or might be made. Particular differences were found in households where the respondent had only an elementary education. Only about three-fifths of these had made adjustments, compared with four-fifths of the households where the respondent was a college graduate.

TABLE 1--PROPORTION OF HOUSEHOLDS REDUCING ENERGY USE BETWEEN 1974 AND 1975 BY  
HOUSEHOLD INCOME LEVEL

USES	PERCENT					
	UNDER : \$5,000- : \$10,000- : \$15,000- : \$25,000 : UNITED	\$5,000 : 9,999 : 14,000 : 24,999 : AND OVER : STATES				
KITCHEN AND LAUNDRY:						
OVEN COOKING AND/OR BAKING	16	18	17	18	18	17
SPECIALTY COOKING APPLIANCES	6	9	7	12	3	8
STOVE TOP COOKING	6	7	6	7	4	6
DISHWASHER	2	8	13	14	22	11
HOT WATER HEATER	9	14	16	20	11	14
CLOTHES DRYER	6	17	20	24	11	16
OTHER USES:						
LIGHTING	41	53	54	66	62	53
HEATING	35	51	52	66	60	51
AIR CONDITIONING	11	16	23	30	30	21
RECREATIONAL ITEMS	10	10	8	12	5	9
NO CHANGES	43	26	20	12	20	25

TABLE 2--PROPORTION OF HOUSEHOLDS REDUCING ENERGY USE BETWEEN 1974 AND 1975, BY AGE OF RESPONDENT

Uses	Under 25	25- 34	35- 49	50- 64	65 and over
	PERCENT				
KITCHEN AND LAUNDRY:					
Oven cooking and/or baking	15	17	18	18	14
Specialty cooking appliances	12	9	8	6	3
Stove top cooking	6	5	7	9	4
Dishwasher	6	12	14	12	7
Hot water heater	11	15	18	13	12
Clothes dryer	13	21	19	16	7
OTHER USES:					
Lighting	59	62	56	52	31
Heating	47	55	58	51	34
Air conditioning	22	22	24	20	13
Recreational items	12	13	9	7	4
No changes	27	17	21	22	49



Larger households more frequently made energy-related adjustments as well. About 80 percent of the households with three or more members made some adjustments, compared with 73 percent with two members and 56 percent with only one person. Laundry and cooking adjustments were most frequent among households with five or more members. The fact that single member households seldom made adjustments probably reflects the high proportion of the elderly and young households with a smaller inventory of appliances.

Whether or not households were owner or renter occupied was another distinguishing characteristic. Almost 80 percent of the owner-occupied households had made adjustments and the same percentage would make additional adjustments if energy prices increased by 25 percent. Only two-thirds of the renters had made adjustments, but almost three-fourths would make adjustments if energy prices increased further. The reason for the lower incidence rate among renters is not entirely clear. But payments for the two primary energy sources, electricity and natural gas, were included in the household rent for 20 and 30 percent of the renters, respectively. Renters making indirect payments for energy are not likely to be as aware of how much energy they are using or the cost. Consequently, there is less incentive to make adjustments.

#### IMPACTS ON DEMAND FOR FOOD AND FIBER PRODUCTS AND RELATED APPLIANCES

##### *Food*

In probing for possible effects on food demand, respondents who made cooking adjustments were asked how they reduced the use of ovens, stovetop burners, and specialty cooking items. The most common practices for reducing oven use were: (1) Using the oven to cook more foods at the same time, (2) substituting specialty cooking appliances, and (3) purchasing more foods such as precooked or fresh foods which needed little or no cooking or baking.

Respondents reducing stovetop cooking mainly relied on greater use of specialty cooking appliances or using the oven to cook or bake more food at the same time. The reduction in specialty cooking appliance use was frequently accomplished by using the oven to cook or bake more at the same time. For all three groups, there was a very small shift towards more eating away-from-home because of higher energy prices.

How did these adjustments affect food demand? Our results indicate that probably not more than 5 percent of the households made a conscientious effort to shift to foods needing less cooking or heating or no cooking at all. This change could be accomplished by buying more fresh fruits, prepared bakery and cereal products, dairy products, processed meats, and delicatessen items. About half of the respondents indicating a change in food purchases were less than 35 years of age. Also, the lower income households were more likely to make adjustment, and in the process, some of them may have even increased expenditures for more highly processed foods.

##### *Fiber*

Reductions in household heating, hot water temperatures, and use of clothes dryers could have had some indirect effects on fiber and de-

tergent demand. Discomfort from cooler household temperatures during the winter months can be overcome by wearing more clothing such as sweaters and using more blankets. Reducing dryer use can stimulate demand for the wash-and-wear apparel items. Both of these adjustments would tend to increase demand for items made from the man-made fibers and their blends with cotton. Wool demand might also benefit, but woolen items are usually much more expensive.

Colder wash water temperatures probably have little impact on fiber preferences and demand but may have a greater effect on the types of detergents used. Most detergents on the market today are for use with warm or hot water, but there are several brands available for use in cool or cold water, and demand for these could strengthen.

### *Appliances*

Findings from the nationwide survey suggest that the amount of energy used by an appliance is generally not considered before a replacement purchase. Only 10 percent of the households thought energy use would be considered if a stove, refrigerator, or other major appliance costing over \$100 needed replacing. Another 8 percent did not mention energy use per se, but indicated they would consider the cost of running the appliance before purchasing it.

Several other aspects of an appliance were considered more frequently than energy use or costs. Price of the appliance was mentioned most frequently as 57 percent indicated they would consider it before securing a replacement. Half indicated that appliance size and 42 percent said brand name would be considered before purchase. Appliance style or other features, warranty, availability of maintenance service, and type of energy used were each mentioned more frequently than the amount of energy used.

Respondents in the Northeast and those with higher education levels appeared to be more interested in energy use of appliances. Only 5 percent of those with less than a high school education said energy use would be considered compared with 17 percent with college educations. This probably reflects more knowledge or concern about higher prices or potential shortages in the future. In the Northeast, where energy prices have risen sharply, 13 percent would consider energy use of the appliance compared with 6 percent of respondents in the South.

Comments by appliance manufacturers support our survey findings. In an article in the Wall Street Journal on October 22, Richard Donegan of General Electric was quoted as saying: "The typical consumer just isn't interested in something that doesn't pay back the additional cost within 2 or 3 years." He also indicated that more energy efficient air conditioners seem to attract only those buyers whose electric rates are much higher. Mr. Yund of the Whirlpool Corporation also points out in the same article that unlike the auto industry, which can gain efficiency by making lighter weight cars, greater efficiency in home appliances requires making them heavier and more costly because of increased copper, insulation, and other materials.

### IMPLICATIONS FOR THE FOOD AND FIBER SECTOR AND POLICYMAKERS

Although three-fourths of the households indicated they had made some type of adjustment to reduce energy use in 1975, a major question

is: Did these adjustments have any significant effect on aggregate use of the energy sources by households? Slightly more than half of the respondents in our study thought they were using the same amount as in the previous year, about one-third thought they were using less, and the rest believed they were using more of at least one energy source.

Since we did not collect data on actual utilization by households surveyed, it was not possible to determine changes in total energy use. However, data recently released by the Federal Power Commission and the Bureau of Mines suggest that energy use per household didn't change between 1974 and 1975. Consequently, the net result was essentially a year of no growth on a per household basis. However, this was an improvement compared with the average annual growth rate of 2 to 3 percent per household during the 1960's. Since more than twice as many thought they reduced energy use compared with those who thought they increased energy use, some of our respondents may have overestimated their efforts to conserve energy.

### *Food and fiber sector*

Although one-fourth of the households made some adjustment in food preparation as a result of higher energy prices, there is little evidence to suggest that this had any profound effect on food markets. But there was evidence of some substitution between products. However, other factors probably contributed far more towards the unstable market conditions that prevailed during this time period.

Nevertheless, there is reason for concern depending on future developments in energy prices. If prices should increase at a rapid rate, consumers might purchase more ready-to-eat or precooked foods on a large scale to reduce household energy consumption and energy expenditures. This development could present a serious problem to the food industry in the sense that consumers would shift energy demand from the household to food processors and distributors. Industry demand for electricity and natural gas would increase, but the question is whether or not the net effect is more efficient energy use.

The same problem might confront the fiber industry as well. Although trends are well established towards increased use of manmade fibers, household energy-reducing adjustments might further stimulate demand for these fibers and blends with cotton. This in turn would indirectly increase the demand for energy by the fiber producers both for processing and as a raw material.

### *Policy*

For policymakers, this study revealed several problems. The fact that the low income, less educated, and elderly made few changes bears out the need for a conservation education program. These households need to be made aware of inexpensive and practical alternatives to conserve energy.

Improvements in the energy efficiency of appliances is another problem. As long as consumers place more emphasis on price or brand than on energy efficiency, little in the way of energy savings can be expected in this area. Technological advancements are one apparent solution, especially if directed towards more energy efficient appliances. Furthermore, the availability of such appliances in the marketplace doesn't assure rapid adoption by the consuming public. Increased incentives might have to be provided to encourage the manufacture and purchase

of the more energy-efficient appliances. Also, an incentive may be needed to encourage the abandonment of still usable but inefficient appliances.

One of the major dilemmas is how to effectively motivate the middle and higher income groups to make further reductions in energy use. Certainly greater conservation education could be helpful. These groups typically have larger homes, more appliances, and more funds to permit substantial energy savings by adopting good conservation practices. However, they are also the ones most likely to have increases in income to offset increases in energy prices and expenditures. Consequently, unless periods of rapid price escalation occur, there is a strong likelihood that the higher income households will try to enhance lifestyles and thus increase energy use.

Whether a policy of increasing household energy prices as fast or faster than increases in income would be an adequate incentive needs further examination. Certainly such a policy could have a major effect on the low-income households and the elderly who usually have fixed incomes. Many of these were not motivated by higher prices in 1975. Of course, they may be able to reallocate some part of their income from food, clothing, or some other expenditure items to energy. But there are practical limits, and some other policy measures may have to be devised to resolve this problem.



## TRANSPORTATION AND FARM-OPERATOR HOUSEHOLDS

(By Connie M. Hoerman, Consumer and Food Economics Institute,  
Agricultural Research Service, USDA)

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Private transportation is a major budget item for farm-operator households. Farm households must rely on private transportation because they usually have limited access to transportation alternatives such as public transportation and car pooling. In 1973 expenditures for transportation by farm-operator households accounted for almost 18 percent of total family living expenditures and ranked third behind housing and food. In 1955, however, transportation expenditures accounted for only 11 percent, and ranked fourth behind housing, food, and clothing (table 1).

An increase in the number of vehicles owned by farm-operator households and changes in household size and income may account for the jump in the percentage of expenditures going for transportation. For example, according to Census figures, between 1960 and 1970 the percent of farm households owning at least one car increased from 77 to 87 percent, and the percent owning two or more cars increased from 16 to 27 percent. Higher incomes and decreased family size during this period probably made this increased vehicle ownership possible. Between 1955 and 1973 the net income per farm increased from \$2,429 to \$11,727. Family size of farm-operator households decreased from 3.8 to 3.5.

The jump in expenditures for transportation between 1955 and 1973 is especially meaningful in that it occurred in a period in which prices paid by farmers for autos and auto supplies increased less than prices paid for all items used for family living (51 percent and 58 percent respectively, according to the Statistical Reporting Service of the USDA). Moreover, most of the data on expenditures in 1973 were collected too early to reflect the large increases in gasoline prices which began at the end of 1973. The continuing increases in prices for transportation-related items may change or may already have changed the percent of expenditures that farm-operator households need to allocate to transportation.

Data on expenditure patterns of farm-operator households are from the 1973 Farm Family Living Expenditure Survey. Basic data from this survey were presented at the Agricultural Outlook Conference last year.<sup>1</sup> This paper presents a special analysis of transportation expenditures of farm-operator households. Data from 2,621 households are included in the analysis. The dollar figures reflect the amount

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<sup>1</sup>Published reports from this survey are available from the Crop Reporting Board, Statistical Reporting Service, USDA, Washington, D.C. 20250.



of the household's expense attributable to family living after any percentage from farm or business operation had been deducted.

#### VEHICLE OWNERSHIP AND MILES DRIVEN

Farm-operator households are more likely to own vehicles and also tend to own more vehicles than is common for all households. (Vehicles include cars, trucks, campers, and other vehicles owned for at least half the year.) Whereas 96 percent of farm-operator households owned at least one vehicle in 1973, according to data from the Bureau of Census, only 83 percent of all U.S. households did so that year. The percentage of farm households owning three or more vehicles was 17 percent, while that of the general population was only 9 percent (table 2).

Among farm-operator households, those with low incomes were the most likely not to own a vehicle or to own just one, while households with high incomes frequently owned two or more vehicles (table 3). Off-farm income was related to the number of vehicles owned by the households in much the same way as income after taxes was related. (Off-farm income is a before-tax figure which includes income other than farm income, such as wages, salaries, and other transitory sources.) Whereas only about one-tenth of households with low off-farm income owned three or more vehicles, three-tenths of households with high off-farm income owned that many.

The number of vehicles owned per household increased as the number of full-time earners increased. Whereas 7 percent of the households having no full-time earners owned three or more vehicles, the percent for households having two earners was four times as high.

Households headed by persons aged 35 to 44 owned the most vehicles. Those headed by persons less than 35 years old almost always owned at least one vehicle, although most had not yet accumulated a fleet of three or more vehicles as had many of the older households. There was a sharp decline in vehicle ownership for the 65 and over age group, although less than 10 percent of these households were without a vehicle.

Of the households who owned no motor vehicles during the year, 67 percent were older persons who lived alone or with one other person, and 30 percent were husband and wife households with one or more children present.

Despite the fact that most of the farm-operator households in the survey probably lived some distance from a town or city, these households did not drive more miles per year than is typical in this country. The average number of total miles driven in 1973 by all vehicles not used exclusively for business per farm-operator household was 16,620 miles. Although no national figures are available for that year, the fall 1974 Survey of Purchases and Ownership by the Bureau of the Census reported the average number of miles driven by all vehicles per U.S. household to be 16,800.

The average annual miles driven per car for the farm households was 10,304 in 1973 and the national average reported by the motor vehicle manufacturers was close to 9,990 miles for that year. The average mileage per car for farm households was directly proportional to the

household's income. The average car mileage was 8,110 miles for households with money income after taxes of less than \$5,000 compared with 11,846 miles for those with income over \$15,000.

#### TRANSPORTATION EXPENDITURES

The largest part of the farm household's transportation dollar went for the purchase of autos (37 percent), followed by fuel to operate autos and trucks (23 percent), and vehicle insurance (10 percent) (table 4).

The average household expenditure for vehicles purchased in 1973 by farm-operator households was \$956, which is greater than the national figure of \$761 per household reported by the Census Bureau for that year. The survey year was not a typical one for farmers with the net farm income being double the amount from the previous year, and this may well have affected their spending patterns.

The percent of cars purchased new in 1973 by farm-operator households was 33 percent, compared with 41 percent for all U.S. households.<sup>2</sup> The average price paid by farm households for a new car in 1973 was \$3,590 whereas it was less (\$3,490) for the entire United States. For used cars the average prices were \$1,418 for the farm households and \$1,287 for the general population. All of these prices reflect the net cost after an allowance had been made for any trade-in.

#### TRIP PURPOSES

The biggest difference between the trip purposes of farmers and farm managers and those of all U.S. drivers was in the category of earning a living (table 5). Although the percent of all trips related to earning a living is almost the same for both groups, the breakdown between home-to-work trips and related business trips is very different. The lower percentage of trips farmers make to work and back is balanced by the greater percentage of trips related to their business.

The lower percentages of trips made by farmers and farm managers for the purposes of shopping; civic, educational, and religious activities; and visiting friends and relatives, may be due to the fact that these trips require more miles of travel for farmers and farm operators than they do for other drivers (tables 5 and 6). Farmers and farm managers have to travel twice the distance of all drivers to conduct family business such as shopping and visiting the doctor. Trips involving earning a living are approximately 3 miles less for farmers. Overall, farmers and farm managers average 2 more miles per trip than do all drivers.

Since trips made by farmers are generally longer in mileage and since farm households travel about the same number of miles per year as all households, then it follows that farm households are likely to make fewer trips than is common for all households.

<sup>2</sup> Data on all U.S. households from motor vehicle manufacturers or from U.S. Bureau of the Census.

TABLE 1.—DISTRIBUTION OF FAMILY LIVING EXPENDITURES FOR FARM-OPERATOR HOUSEHOLDS, 1955 AND 1973

[Amount in percent]

Expenditure group	1973	1955
Total .....	100.0	100.0
Housing.....	28.7	28.1
Food.....	21.7	25.2
Transportation.....	17.6	11.4
Clothing.....	7.0	13.0
Medical care.....	6.7	7.3
Other <sup>1</sup> .....	18.3	15.0

<sup>1</sup> Includes personal care; tobacco and alcoholic beverages; reading, subscriptions, memberships and other recreation; education; miscellaneous; personal insurance; and cash gifts and contributions.

Source: Farm-Operator Family Living Expenditures for 1973. USDA, SRS, September 1975, p. 8.

TABLE 2.—HOUSEHOLD OWNERSHIP OF VEHICLES, 1973

[Amount in percent]

Type and ownership (number)	Farm operators <sup>1</sup>	United States
All vehicles:		
0.....	3.7	16.9
1.....	47.6	40.1
2.....	31.7	33.7
3 or more.....	17.0	9.3
Cars:		
0.....	11.2	18.5
1.....	62.0	47.6
2.....	21.4	28.4
3 or more.....	5.4	5.5
Trucks:		
0.....	70.9	86.5
1 or more.....	29.1	13.5

<sup>1</sup> Number of vehicles owned by farm-operator households excludes vehicles used entirely for farm business and those owned by the household for less than half the year.

Source: Farm data from Farm Family Living Expenditure Survey, special analysis by USDA, CFEI, fall 1976. U.S. data from unpublished data from the 1973 Survey of Purchases and Ownership, U.S. Department of Commerce, Bureau of the Census, July 1976.

TABLE 3.—VEHICLE OWNERSHIP OF FARM-OPERATOR HOUSEHOLDS BY SELECTED HOUSEHOLD CHARACTERISTICS

[Amount in percent]

Characteristics	Number of vehicles owned			
	0	1	2	3 or more
Money income after taxes:				
Less than \$5,000.....	8.9	63.6	20.9	6.7
\$5,000 to \$9,999.....	2.8	52.4	31.5	13.3
\$10,000 to \$14,999.....	1.1	39.5	36.9	22.6
\$15,000 and over.....	2.1	31.0	38.9	28.0
Age of head of household:				
Less than 35.....	2.3	53.7	31.8	12.2
35 to 44.....	1.8	35.5	36.4	26.3
45 to 54.....	2.6	39.1	35.3	23.0
55 to 64.....	3.4	48.8	34.1	13.6
65 and over.....	9.5	67.8	16.8	5.8
Full-time earners:				
0.....	8.7	65.1	19.5	6.7
1.....	3.2	50.9	31.7	14.2
2.....	2.3	30.6	38.3	28.8
All farm-operator households.....	3.7	47.6	31.7	17.0

Source: Farm Family Living Expenditure Survey, special analysis by CFEI, Agricultural Research Service, U.S. Department of Agriculture, fall 1976.

TABLE 4.—AVERAGE EXPENDITURES PER HOUSEHOLD FOR TRANSPORTATION-RELATED ITEMS

Item	Dollars	Percent of total
All transportation.....	1,638.82	100.0
Purchase of autos and other vehicles.....	755.94	46.1
Autos.....	600.13	36.6
Trucks.....	88.35	5.4
Motorcycles and scooters.....	20.83	1.3
Campers.....	20.36	1.2
Other.....	26.27	1.6
Renting and leasing of vehicles.....	2.69	.2
Vehicle operating expenses.....	656.18	40.0
Fuel to operate autos and trucks.....	378.48	23.1
Lubrications, autos and trucks.....	33.19	2.0
Fuel and lubrications; other vehicles.....	7.23	.4
Tags and fees.....	39.76	2.4
Vehicle insurance.....	168.08	10.3
Finance charges.....	24.41	1.5
Other.....	5.03	.3
Vehicle maintenance; repair expenses.....	193.15	11.8
Tires and tubes.....	83.15	5.1
Batteries.....	9.55	.6
Air-conditioning and accessories.....	4.66	.3
Service and repair work.....	77.45	4.7
Other.....	18.34	1.1
Transportation used on trips.....	22.83	1.4
Public transportation cost.....	4.31	.3
Transportation to and from school for someone attending school away from home.....	3.72	.2

Source: Farm-Operator Family Living Expenditures for 1973; USDA, SRS, September 1975, pp. 34-6.

TABLE 5.—AUTOMOBILE TRIPS BY TRIP PURPOSE

[Amount in percent]

Trip purpose	Farmers and farm managers	All U.S. drivers
Earning a living.....	36.1	36.2
Home-to-work.....	24.0	31.9
Related business.....	12.1	4.3
Family business.....	34.8	31.0
Shopping.....	13.8	15.2
Medical and dental.....	3.7	1.8
Other.....	17.3	14.0
Civic, educational and religious.....	7.2	9.3
Social and recreational.....	20.8	22.4
Visiting friends and relatives.....	8.0	8.9
Pleasure driving.....	1.3	1.4
Vacations.....	(1)	.1
Other.....	11.5	12.0
Other.....	1.1	1.1

<sup>1</sup> Data insufficient for analysis.

Source: Purposes of Automobile Trips and Travel. U.S. Department of Transportation, Federal Highway Administration "Nationwide Personal Transportation Study," Report No. 10, p. 69, May 1974.

TABLE 6.—AVERAGE TRIP LENGTH BY MAJOR TRIP PURPOSE

[In miles]

Trip purpose	Farmers and farm managers	All U.S. drivers
Earning a living.....	7.3	10.2
Family business.....	11.2	5.6
Civic, educational, and religious.....	5.7	4.7
Social and recreational.....	17.0	13.1
Total.....	10.9	8.9

Source: Purposes of Automobile Trips and Travel. U.S. Department of Transportation, Federal Highway Administration. "Nationwide Personal Transportation Study," Report No. 10, p. 71, May 1974.

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# ENERGY EXPENDITURES AND APPLIANCE OWNERSHIP OF FARM-OPERATOR HOUSEHOLDS

(By Marilyn Doss Ruffin, Consumer and Food Economics Institute, Agricultural Research Service, USDA)

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Energy has been a growing concern in the budget of many families. Information about farm family spending for energy for family living purposes and ownership and purchase of major energy-consuming appliances by farm families was collected by the U.S. Department of Agriculture as part of the 1973 nationwide Survey of Farm-Operator Family Living Expenditures.<sup>1</sup> Special tabulation of that part of the survey along with relevant information from the 1970 Census and the 1973-74 Surveys of Purchases and Ownership of the U.S. Department of Commerce and from the 1972-73 Survey of Consumer Expenditures of the U.S. Department of Labor is presented here.

## HOUSEHOLD ENERGY EXPENDITURES

Farm families have heavy expenditures for household energy. Nearly all farm-operator households reported expenditures for one or more fuel and utility categories compared with 90 percent of all U.S. households. The average expenditure for farm-operator households was about one-fifth higher than for all U.S. households (table 1).<sup>2</sup> Compared with all U.S. households, a higher percentage of farm-operator households had expenditures for electricity, for bottled and tank gas, for fuel oil and kerosene, and for coal and wood. Fewer farm households reported expenditures for utility (piped) gas.

## EXPENDITURES FOR MAJOR EQUIPMENT

Farm families had substantial expenditures for and inventories of major appliances. Although net farm income in 1973 was double that of 1972, appliance expenditures per household averaged about the same. In 1973 the percentage of farm-operator households who reported purchases of major appliances for their own use was about a third higher than that of all U.S. households (42 percent and 32 percent, respectively); the average expenditure per farm-operator household was about 50 percent higher than the average for all U.S. households.<sup>3</sup> Conversely, average spending by survey households for laundry and

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<sup>1</sup> For more information on the survey see U.S. Department of Agriculture, Statistical Reporting Service, Farm-Operator Family Expenditures for 1973, SpSy6(9-75), September 1975.

<sup>2</sup> Unless otherwise stated, expenditures for "all households" are derived from U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure Survey Series: Interview Survey, 1972 and 1973*, Report 455-2, 1976, table 1b.

<sup>3</sup> Expenditures reported in this sentence exclude purchases of television sets and range hoods in order to make farm family data comparable with U.S. household data reported by the Bureau of Labor Statistics.

drycleaning services was less for farm families (\$40 compared with \$79).

Among farm-operator households who reported purchasing major equipment in 1973 for use by the household, three-tenths spent under \$200; four-tenths spent \$200 or more, but less than \$500; and three-tenths spent \$500 or more. Except for families at the lowest income levels, average expenditure rose with income (table 2). Why average expenditure was so high for families with income under \$5,000 is not clear. It may be that these families started the survey year with a lower inventory of owned appliances and were forced to do some "catching up." Some likely were acquiring for the first time such appliances as automatic washers or vacuum cleaners or perhaps clothes dryers—appliances which, while not necessities like the stove and refrigerator, do add greatly to the convenience of housekeeping. An additional factor to consider is how well the reported after-tax income for 1973 reflected the family's usual annual income and level of living.

When families were classified by age of head, mean expenditure for families reporting an expenditure was highest when the head was under 25 and lowest when the head was 65 or over. The younger group were probably building inventory, while the older households may have passed their peak inventory level and may have been replacing only as necessary.

#### OWNERSHIP AND PURCHASE OF MAJOR EQUIPMENT

While most U.S. households (both farm and nonfarm) had the use of several major appliances in their homes, a larger percentage of all U.S. households than of farm-operator households reported having appliances they did not own. Most of these non-owned appliances were probably included in rental housing units. One-fourth of all U.S. households had available for their use a range they did not own, one-fifth had available a non-owned refrigerator, and a few (less than 5 percent for any given appliance) had non-owned freezers, washers, dryers or dishwashers available (table 3). By comparison, less than one percent of the farm-operator families reported having in the household a given appliance that was not owned. For major appliances where comparison is possible, a larger percentage of farm-operator households reported ownership than did all U.S. households or households outside metropolitan areas. About four-fifths of the farm population lived outside metropolitan areas in 1974, constituting about a tenth of the nonmetropolitan population.<sup>4</sup>

The percent of farm-operator households owning selected major equipment items is presented in table 3. Owned items include those purchased by the household for its own use, those included in the purchase of the home, and those received as gifts. Households counted as having purchased an item include those who purchased as gifts or rented the item as well as those who purchased for use by the house-

<sup>4</sup> "Outside metropolitan," "nonmetropolitan," and "outside SMSA (Standard Metropolitan Statistical Area)" are used interchangeably. An SMSA is a county or group of contiguous counties containing at least one city of 50,000 inhabitants or more or "twin cities" with a combined population of at least 50,000. Contiguous counties are included in an SMSA if, according to certain criteria, they are socially and economically integrated with the central city. In New England States, SMSA's consist of towns and cities instead of counties. Each SMSA must include at least one central city.

hold. Ownership and availability of major appliances by all U.S. households and by households outside metropolitan areas as reported in the Survey of Purchases and Ownership of the U.S. Department of Commerce, are also presented in table 3.

More than four-fifths of the farm households reported owning a food freezer, compared with a third of all U.S. households (Survey of Purchases and Ownership, 1973-74 average) and slightly less than half of all nonmetropolitan households. Nine-tenths of the farm households owned washing machines, compared with about three-fourths of both nonmetropolitan households and all U.S. households. Two-thirds of the farm households owned clothes dryers; this compares with about half of all U.S. households and half of all nonmetropolitan households. Dishwashers were owned by about equal proportions of farm households as all households. Comparative information was not available for garbage disposers, floor care equipment, or sewing machines.

1970 and 1973-74 data indicate that water heaters, cooking stoves, and clothes dryers used in farm homes are more often electric models than are those used in all U.S. households. Although information was not collected in the Farm Family Living Survey or the Surveys of Purchases and Ownership on water heaters, information from the 1970 Census of Housing provides a comparison between farm households and all U.S. households. In 1970, while only a quarter of all housing units in the United States had electric water heaters, more than half of all occupied farms used electricity for heating water. More farm households used electricity for cooking, more used bottled or tank gas, and fewer used utility gas. In the Farm Family Living Survey, two-thirds of the households owned an electric cooking stove in January 1974, and two-thirds of stove purchases in 1973 were electric. Almost nine-tenths of the farm-operator households owning a clothes dryer had an electric model; similarly, almost nine-tenths of their purchases were for electric.

#### IMPLICATIONS FOR ENERGY INFORMATION

About half of the farm-operator households reported purchasing a major kitchen, laundry, or floor care appliance, or a television set, or a room air-conditioner in 1973. High percentages purchased freezers and refrigerators, appliances that are major energy consumers, and for which energy consumption varies widely among models. It seems likely that each year many farm families are making decisions in selecting appliances and could make use of information on relative energy efficiencies. The 1973 survey indicates that spending by young farm families may be quite high; young families of course have little experience in making appliance decisions and would seem to have most need for guidance in selecting energy-efficient models.

Most farm-operator households owned a food freezer; some owned two or more. Freezers are high consumers of electrical energy. Management practices in their use and care and in their location in the

house can make a difference in the cost of operation. This would appear to be another fruitful area for guidance.

With a substantial proportion of farm households having electric water heaters, nine-tenths having washing machines and over one-fourth having dishwashers according to the most recent surveys, careful selection and use of these items, and care in other uses of hot water as well, could have an energy-saving impact.

TABLE 1.—FUEL AND UTILITY EXPENDITURES, FARM-OPERATOR HOUSEHOLDS AND ALL U.S. HOUSEHOLDS, 1973

Expenditure item	Farm-operator households		All U.S. households	
	Average expenditure for households reporting expenditure	Percent of households reporting expenditure	Average expenditure for households reporting expenditure	Percent of households reporting expenditure
Electricity.....	\$231	96	\$213	77
Gas (in mains).....	186	9	173	45
Combined gas and electric.....	404	2	308	15
Bottled or tank gas.....	237	49	164	10
Fuel oil and kerosene.....	257	35	278	20
Coal and wood.....	131	11	-----	(1)
Other fuels.....	10	4	48	10
Total <sup>2</sup> .....	473	99	405	90

<sup>1</sup> Included with "other fuels."

<sup>2</sup> In addition, 26 percent of farm-operator households produced fuel on the farm, with an average value of \$136 per household reporting.

<sup>3</sup> Based on households reporting any expenditure for utilities and public services.

<sup>4</sup> Based on households reporting any expenditure for fuels and utilities.

Sources: Derived from U.S. Department of Agriculture, Statistical Reporting Service, "Farm-Operator Family Expenditures for 1973," SpSy6(9-75), September 1975, tables 5 and 6; and U.S. Department of Labor, Bureau of Labor Statistics "Consumer Expenditure Survey Series: Interview Survey, 1972 and 1973," report 455-2, 1976, table 1b.

TABLE 2.—EXPENDITURES IN 1973 FOR PURCHASE OF MAJOR HOUSEHOLD EQUIPMENT, FARM-OPERATOR HOUSEHOLDS <sup>1</sup>

Population	Average expenditure	Percent reporting expenditure	Average expenditure for households reporting expenditure
All farm-operator households.....	\$200	50	\$397
Income after taxes:			
Under \$5,000.....	196	48	412
\$5,000 to \$7,499.....	178	49	366
\$7,500 to \$9,999.....	177	49	362
\$10,000 to \$14,999.....	209	53	396
\$15,000 to \$19,999.....	203	50	404
\$20,000 and over.....	250	56	443
Age of head:			
Under 25.....	275	54	513
25 to 34.....	186	50	376
35 to 44.....	217	52	417
45 to 54.....	212	51	418
55 to 64.....	192	51	374
65 and over.....	168	46	364

<sup>1</sup> Expenditures in 1973 for purchase of new and used major equipment for use by household. Includes cooking stove refrigerator, freezer, dishwasher, washer, dryer, garbage disposer, range hood, electric floor care equipment, sewing machine, television, window air-conditioning unit. Includes installation charges, if any. Based on year-of-acquisition concept.

Source: Special tabulation by U.S. Department of Agriculture, Agricultural Research Service, Consumer and Food Economics Institute, of unpublished data from the 1973 Farm Family Living Expenditure Survey, U.S. Department of Agriculture, Statistical Reporting Service.

TABLE 3.—OWNERSHIP AND AVAILABILITY OF SELECTED MAJOR APPLIANCES BY ALL U.S. HOUSEHOLDS AND HOUSEHOLDS OUTSIDE METROPOLITAN AREAS; AND OWNERSHIP BY FARM-OPERATOR HOUSEHOLDS IN JANUARY 1974 AND PURCHASES DURING 1973

[Percent of households]

Appliance	Appliance in housing unit, 1973-74 average				Farm-operator households	
	All U.S. households		Households outside metropolitan areas <sup>1</sup>		Owned January 1974	Purchased 1973 <sup>2</sup>
	Available	Owned	Available	Owned		
Cooking stove.....	98.4	75.4	98.6	86.6	99.1	9.3
Electric.....					65.4	6.1
Refrigerator.....	98.8	80.3	98.9	89.6	98.4	8.7
2 or more.....					84.4	
Freezer.....	32.9	32.6	45.7	45.2	14.0	
1.....					85.5	7.4
2 or more.....					71.3	
Dishwasher.....	27.1	23.1	19.8	18.9	14.2	
Built-in.....					27.1	4.4
Portable.....					14.8	2.0
Garbage disposer.....					12.4	2.5
Washing machine.....	72.3	69.4	77.5	75.8	6.3	.9
Automatic.....					91.8	10.0
Semi-automatic.....					69.3	8.2
Washer-dryer combination.....					4.7	.4
Other.....					.9	.3
Clothes dryer.....	51.9	49.4	53.1	52.0	20.2	1.4
Electric.....					66.2	6.3
Gas.....					58.2	5.4
Electric floor care equipment.....					8.2	.9
Vacuum cleaner.....					87.0	10.6
Electric broom.....					85.4	9.1
Shampooer-polisher.....					6.0	.9
Other.....					9.7	.7
Sewing machine.....					1.9	.3
Window air-conditioning unit <sup>3</sup> .....	31.9		30.0		85.9	4.9
Reverse cycle <sup>4</sup> .....					28.9	3.4
Not reverse cycle.....					12.3	1.5
Television.....	96.4		95.8		17.0	1.9
Black and white.....					96.6	
Color.....	59.0		54.2		64.8	6.1
					52.4	10.5

<sup>1</sup> Outside standard metropolitan statistical areas (SMSA's).

<sup>2</sup> Households counted as having purchased an item include those who purchased as gifts or rented the item as well as those who purchased for household use. Based on year-of-obligation concept.

<sup>3</sup> Includes units installed in wall of structure.

<sup>4</sup> A reverse-cycle unit is one which is capable of both cooling and heating.

Sources: Ownership and availability for all U.S. households and for households outside metropolitan areas is from the U.S. Department of Commerce fall 1973 and fall 1974 Surveys of Purchases and Ownership (SOPO). Reported figures are the average of the 2 surveys as reported in "Selected Data from the 1973 and 1974 Surveys of Purchases and Ownership," Bureau of Census, U.S. Department of Commerce, July 1976. Ownership by farm-operator households was obtained through special tabulation by U.S. Department of Agriculture, Agricultural Research Service, Consumer and Food Economics Institute, of unpublished data from the 1973 Farm Family Living Expenditure Survey, U.S. Department of Agriculture, Statistical Reporting Service. Percent of households purchasing is from USDA, SRS, "Farm-Operator Family Expenditures for 1973, SpSy6(9-75), September 1975, table 6.



## HOME GARDENING AND PRESERVATION OF FRUITS AND VEGETABLES

(By Evelyn F. Kaitz, Social Science Analyst, Economic Research Service, USDA,  
and Carole A. Davis, Supervisory Food Technologist, Agricultural Research  
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### HOME GARDENING AND INCIDENCE OF FREEZING AND CANNING\*

One of the main functions of the Consumer Economics and Demand Analysis Program Area (CEDA) is to continually assess consumers' motives, attitudes, knowledge, needs and behavior toward food and fiber and related goods and services. As a means of obtaining up-to-date information about the changing consumer concerns and behavior as they affect food purchases, USDA has developed a new continuing survey in which consumers will be interviewed periodically about a number of issues.<sup>1</sup>

The first phase of this survey was conducted during the spring of 1976 and included questioning about home gardening and preservation of fruits and vegetables. Home gardening has been presumed to be one of the favorite hobbies of Americans. Beyond that very little information is available in terms of motives, incidence rate, products grown, utilization of fruits and vegetables grown in home gardens and changes over time.

Personal interviews were conducted in over 1,400 households with the main food shopper, or, if none, with the person who had the major responsibility for food preparation. These households represent a cross-section of private households throughout the United States, excluding Alaska and Hawaii. Results from the study are projectable within certain statistical limits to all households within the co-terminous United States.

There has been a slight but steady growth in the number of households with fruit and vegetable home gardens over the past few years. Findings indicated that 43 percent of the households surveyed planted a garden in 1974. This projects to around 30 million households in the 48 States surveyed; 46 percent in 1976 (approximately 33 million households); and 48 percent (approximately 34 million households) either had already planted or intended to plant one in 1976. This suggests that the interest in home fruit and vegetable gardening generated in the United States 3 or 4 years ago amid fast-rising food prices may be established and is not necessarily transitory.

### REASONS FOR THE 1975 GARDEN

Most of the study covered behavior in 1975. Although respondents were not of necessity the gardeners, three reasons predominated

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\*By Evelyn F. Kaitz.

<sup>1</sup>National study of consumers' food-related behavior, attitudes, and motives.

among the variety of motivating reasons given by the respondents that reported a household fruit and vegetable garden in 1975. A preference for the taste of fresh fruits and vegetables was the most frequently mentioned reason (by about 50 percent), followed by the desire to save money and cut down on the food budget (by 40 percent), and as a hobby (by about one-third of the garden household respondents). In general, there were no significant differences in demographic characteristics in those households that had the garden because of a preference for the taste of fresh fruits and vegetables. Households in rural areas and those with five or more members were more likely than households in metropolitan areas or households with fewer members to have had a garden in 1975 to save money or cut down on the food budget. In contrast, households in rural communities were less likely to have a home garden as a hobby. However, about half the respondents with gardens in single-member households had the garden as a hobby compared to about 30 percent of the households with a larger number of members.

The reasons given by the respondents for the household fruit and vegetable garden in 1975 were what one might expect when the per capita income is considered. As per capita income decreased from \$7,000 or more to less than \$2,000, it was more likely that there was a household garden to save money and cut down on the food budget. In contrast, as the per capita income increased from less than \$2,000 to \$7,000 or more, it was more likely that the household garden was a hobby.

#### LOCATION OF THE 1975 GARDENS

Around 85 percent of the 1975 gardens were located in the household yard. We did not determine the exact location of the home gardens that were located elsewhere. But, there was practically no payment reported for the use of these garden locations. In the second phase of the study, we are planning to investigate who provided the land for the away-from-home fruit or vegetable gardens.

#### FRUITS AND VEGETABLES GROWN IN THE 1975 HOME GARDENS

As shown in table 3, the tomato was the most popular vegetable grown in the 1975 home gardens—about 95 percent of our garden households grew them. This is not surprising, as in a study of Consumer Satisfaction with Food Products and Marketing Services conducted during the spring of 1974 by ERS, tomatoes got the highest dissatisfaction rating of the 31 individual products in the survey. Consumers criticized price, ripeness, taste, and appearance. The next most frequently grown vegetables were beans (limas, green, wax, pole, etc.), grown in about 70 percent of the home gardens; cucumbers, peppers, radishes, and green onions (scallions) were grown in about 60 percent of the gardens. Lettuce, onions, corn, and carrots were grown in about 50 percent of these home gardens.

There were not many fruits grown in the 1975 home gardens. Strawberries and apples were the most popular—mentioned by about 20 percent. Melons, peaches, and pears were the only other fruits grown

in more than 10 percent of the home gardens. Strawberries were more popular in the West than in the other regions.

#### COMPARATIVE GARDEN SIZES

In those households that had a garden in both 1974 and 1975, about 65 percent of the respondents answered that the garden was the same size in 1975 as it was in 1974. About 25 percent of the households that had a garden both of these years had a larger garden in 1975 for reasons such as: Wanted to plant more (reported by about 50 percent of these respondents), had more ground available (by about 20 percent), and saves money (by about 15 percent).

About 70 percent of the households that had a garden in 1975 already had or planned to have one the same size in 1976. About 15 percent had or expected to have larger and about 10 percent smaller gardens this year.

#### ACTIVITY

Let us now look at table 1 and the activities in the different types of households—those that had gardens in 1974, 1975, and 1976; those that had gardens 2 out of 3 years; those that had a garden only in 1 year; and those that did not have or plan to have a garden. In discussion any of the comparisons that involve the 1976 home garden from our sample, I am including those households in which the respondent said someone in the household planned to have a home garden in 1976. Bear in mind, however, that because of the interviewing time period and climatic differences in the areas surveyed, only about 20 percent of the household gardens had already been planted this year.

About one-third of our sample households had a garden in 1974, 1975, and 1976. They represent about 75 percent of our households with gardens in 1975 and are probably the hard core or persistent kinds of fruit and vegetable gardening households. About 40 percent of our households did not have a fruit or vegetable garden in these 3 years—the determined, nongardening types. There was very little activity in the other households. Very small percentages of our households were either new gardeners or those no longer gardening.

#### DEMOGRAPHIC DIFFERENCES IN THOSE HOUSEHOLDS THAT DID OR DID NOT HAVE A GARDEN ALL 3 YEARS

As you can see in table 2, there were differences in the demographic characteristics of households that had a fruit and vegetable garden in 1974, 1975, and 1976 (the continuous garden households) and the characteristics of households that did not have a fruit and vegetable garden these 3 years (continuous nongarden households).

Our findings imply that gardening is more prevalent in those households that have a sense of permanency. For example, 87 percent of our garden households were living in houses that they owned. In addition, more respondents from the garden households than those from the nongarden households said they had lived in the same dwelling since January 1975.

Comparing the family income of the garden households to that of the nongarden households, there were about the same percentage of households with or without gardens in those households with total family income between \$5,000 and \$14,999 and \$25,000 and over. However, more of the nongarden households had a family income of less than \$5,000 than did the garden households; whereas, more of the garden households had a family income of between \$15,000 and \$24,999 than did the nongarden households.

More of the garden households had three or more members than did the nongarden households.

#### RELATIONSHIP OF GARDENING TO BUDGET CONSCIOUSNESS

Early in the interview, before the food shoppers were questioned about the household gardening activity, we asked them whether or not they always, almost always, sometimes, seldom, or never have to keep within a food budget. In those households where the respondents said they always or almost always have to keep within a food budget, a large proportion did not have a garden in 1975. This could be for any number of reasons, for example, these households could be in apartments. We plan to do some additional analysis to explain what appears to be an unusual situation.

Referring again to the reasons given by respondents for having the 1975 home garden, 40 percent said it was to save money and cut down on food expenditures. Speaking about this group only, we found that about two-thirds of them also said they always or almost always have to keep within a food budget.

#### RELATIONSHIP OF GARDENING TO HEALTH PROBLEMS

We were interested in whether there was any correlation between home gardening and eating more fresh fruits and vegetables because of a health problem. We found the demographic characteristics in households reporting that someone was eating more fruits and vegetables because of health problems were about the same in households that were growing their own as they were in those that did not have gardens.

In those households where fresh fruits or vegetables are eaten more by anyone in the household because of health problems they want to prevent, about 60 percent had a fruit and vegetable garden in 1975.

#### FREEZING

We established whether anyone in our sample households had frozen any fruits or vegetables in 1975, even if they were not from the household garden, which ones were frozen, and which ones came from their household garden. In 46 percent of our households, someone froze fruits or vegetables in 1975.

As would be expected, the largest proportion of households that froze fruits and/or vegetables whether or not these came from the household garden or the households even had a garden, were in the rural communities. The largest proportion of households that did not



freeze any fruits or vegetables were in the larger metropolitan areas, the Northeast region, and the one-member households. The largest proportions of households that froze were from the continuous garden household group (about 75 percent), whereas the least likely to freeze fruits and vegetables were from the household group that had not had a garden in any of the 3 years being considered.

Although freezing was not one of the three most popular reasons for having a garden in 1975, the respondents in around 10 percent of the garden households indicated that there was a garden to provide food for freezing.

About 69 percent of our 1975 garden households also froze fruits and vegetables from their home gardens. Shown in table 3, the order of popularity was very different for freezing the homegrown vegetables than it was for growing them. Beans were frozen in about half of the households; corn in about 40 percent; peppers, peas, and tomatoes in almost 30 percent. Strawberries and apples were again the most popular fruits, but in only 16 and 11 percent of the households, respectively.

#### RELATIONSHIP OF GARDENING TO FREEZING AND OWNERSHIP OF FREEZERS

About 60 percent of our total households had a refrigerator/freezer combination. Among this group, only 46 percent said someone in their household froze fruits and vegetables in 1975. However, about 30 percent of our total households had a separate freezer. Our findings indicated that about 75 percent of the respondents from these households said someone in their household froze fruits and vegetables. We can only imply a correlation from these preliminary findings between ownership of a separate freezer and freezing fresh fruits and vegetables from the household garden. However, the relationship seems plausible because the largest proportion of households (about 75 percent) that froze fruits and vegetables in 1975 were from the 34 percent of total households that were continuous gardeners.

#### HOME CANNING

We investigated home canning or preserving as another way to utilize the homegrown fruits and vegetables. Thirty-four percent of the households canned or preserved fruits or vegetables in 1975 whether or not these came from their home gardens or they even had a household garden. And, around 30 percent of our respondents said someone in their households canned or preserved fruits or vegetables in 1975 from the household garden. One of the reasons for the household garden (given by about 14 percent of our garden household respondents) was to provide food for canning. Our continuous garden households were more likely to can or preserve fruits and vegetables than were the other households.

As can be seen in table 3, the two most popular vegetables grown in the 1975 home gardens were also the two most popular vegetables from the household garden for canning—tomatoes in 65 percent of the households and beans in 42 percent. Cucumbers and beets were



canned in about 30 percent of the households. Of the homegrown fruits, apples were the most frequently canned fruit (15 percent); strawberries, pears, and peaches were canned in about 10 percent of the households that canned homegrown fruits in 1975.

#### DIFFICULTY IN GETTING THINGS NEEDED FOR CANNING OR PRESERVING

In approximately two-thirds of the households that canned or preserved fruits and vegetables in 1975 there was some difficulty in obtaining lids, jars, and other things needed for canning. Getting lids was a problem for almost all that experienced difficulty. The respondents in 40 percent of the households that said there was difficulty indicated that less fruits and vegetables were canned or preserved in 1975. About 25 percent said some fruits and vegetables that would have been canned were frozen. Is this a temporary effect or will more canners switch to freezing? Is there a need to develop different types of fruits and vegetables for eating fresh, for freezing, or canning?

#### THE FUTURE OF HOME GARDENING

Economy motives figured importantly when interest in home gardening of fruits and vegetables was generated 4 or 5 years ago amid fast-rising prices. There is some question as to whether or not this interest has peaked and is likely to decline.

The incentives for gardening, canning, and freezing are diminishing for those simply trying to save money as employment opportunities and incomes improve along with increasing stability in food prices. For the majority of gardening households, preference for their own produce and recreational enjoyment might tend to perpetuate gardening even in better economic times. As long as such households remain loyal to these motives, there is little likelihood of a major decline in home gardening activity.

*Table 1.—Household gardening activity, 1974-76*

<i>Activity</i>	<i>Percent</i>
Had a household garden in 1974, 1975, and either already have one or plan to have one in 1976.....	34
Had a household garden in 1974, 1975, and do not plan to have one in 1976.....	5
Had a household garden in 1974, did not have one in 1975, and do not plan to have one in 1976.....	3
Had a household garden in 1974, did not have one in 1975, and either already have one or plan to have one in 1976.....	2
Did not have a household garden in 1974, 1975, and do not plan to have one in 1976.....	42
Did not have a household garden in 1974, 1975, and either already have or plan to have one in 1976.....	7
Did not have a household garden in 1974, did have one in 1975, and either already have or plan to have one in 1976.....	5
Did not have a household garden in 1974, had one in 1975, and do not plan to have one in 1976.....	2

SOURCE.—National study of consumers' food-related behavior, attitudes and motives, conducted by USDA, spring 1976.

TABLE 2.—DEMOGRAPHIC CHARACTERISTICS OF HOUSEHOLDS HAVING A FRUIT OR VEGETABLE GARDEN IN 1974, 1975, AND HAVING OR PLANNING TO HAVE ONE IN 1976; AND OF HOUSEHOLDS NOT HAVING A FRUIT OR VEGETABLE GARDEN IN 1974, 1975, AND NOT PLANNING TO HAVE ONE IN 1976

[Amounts in percent]

Characteristics	Garden households	Nongarden households
Region:		
Northeast.....	22	25
North-central.....	34	24
South.....	28	33
West.....	16	18
Type dwelling:		
Own house.....	87	49
Rent house.....	6	15
Other (own/rent apartment, mobile home, etc.).....	6	36
Occupancy period:		
Lived in same dwelling since January 1975.....	91	84
Did not live in same dwelling since January 1975.....	8	14
Family income:		
Less than \$5,000.....	12	19
\$5,000 to \$9,999.....	19	22
\$10,000 to \$14,999.....	20	20
\$15,000 to \$24,999.....	24	14
\$25,000 and over.....	11	8
Income change:		
More in 1975 than 1974.....	36	32
Less in 1975 than 1974.....	17	14
Same in 1975 and 1974.....	43	48
Household size:		
1 member.....	7	23
2 members.....	32	31
3 or 4 members.....	38	31
5 or more members.....	23	15
Households with at least 1 person in each age group:		
Under 6.....	23	23
6 to 11.....	29	18
12 to 17.....	28	18
18 to 24.....	25	28
25 to 34.....	30	27
35 to 44.....	27	20
45 to 54.....	26	23
55 to 64.....	27	19
65 or more.....	22	23

Source: National study of consumers' food-related behavior, attitudes, and motives conducted by USDA, spring 1976.

TABLE 3.—PERCENT OF HOUSEHOLDS WITH GARDENS GROWING, FREEZING, AND CANNING OR PRESERVING SELECTED FRUITS AND VEGETABLES FROM THEIR HOME GARDENS IN 1975

Fruits and vegetables	Grown	Frozen	Canned or preserved
Tomatoes.....	95	26	65
Beans (lima, wax, etc.).....	71	54	42
Cucumbers.....	62	4	29
Peppers.....	61	28	10
Radishes.....	59	0	0
Green onions (scallions).....	58	2	1
Lettuce.....	56	1	0
Onions.....	52	3	4
Carrots.....	50	15	8
Corn.....	50	41	15
Squash.....	45	21	8
Beets.....	40	7	29
Peas.....	40	27	7
Turnips.....	26	7	1
Strawberries.....	22	16	9
Apples.....	20	11	15
Melons.....	13	3	1
Peaches.....	13	7	10
Pears.....	10	3	10

Source: National study of consumers' food-related behavior, attitudes and motives, conducted by USDA, spring 1976.

Table 4.—Respondent characteristics (respondent is not of necessity the gardener)

Characteristic	Percent
Sex:	
Female .....	89
Male .....	11
Employment:	
Currently employed.....	40
Employed any time in 1975.....	50
Chief wage earner in household:	
Respondent is current chief wage earner.....	24
Respondent and someone else were chief wage earners in 1975.....	4
Respondent was chief wage earner in 1975.....	25
Respondent and someone else were chief wage earners in 1975.....	4
Education:	
None through eighth grade.....	15
Less than a high school graduate.....	16
High school graduate.....	38
Less than a college graduate (includes all vocational training beyond high school).....	18
College graduate or more.....	12
Age:	
Under 25.....	13
25-34 .....	24
35-49 .....	26
50-64 .....	23
65 and over.....	14

SOURCE.—National study of consumers' food-related behavior, attitudes and motives, conducted by USDA, spring 1976.

### HOME CANNING\*

Many people are canning food at home today. Moreover, because of economic uncertainty and unemployment levels, the number of home canners is likely to increase. Although the Department has for many years maintained publications offering research-based instructions to help the home canner, reports received in recent years through the extension service or directly from the consumer indicate that many of them are experiencing problems. These range from difficulty in obtaining proper canning supplies to spoilage of home canned foods. This spoilage not only results in economic loss, but may constitute a hazard to health or life if the food is consumed. To obtain a clear picture of the home canning situation a survey was undertaken.

At the conclusion of the personal interview for the Economic Research Service National Study of Consumers' Food-Related Behavior Attitudes and Motives, in those households where the respondents indicated that someone in the household had canned or preserved fruits or vegetables in 1975, the home canners were asked to self-administer and complete a supplemental questionnaire about the canning they did in 1975.

In order to obtain a large enough and significant sample of home canners, a personal screening interview was conducted in additional households in the same sampling locations used in the personal interview national probability sample. In those households where someone had canned or preserved fruits or vegetables in 1975, the canner was asked to self-administer and complete a supplemental questionnaire about the canning they did in 1975. The final number of self-administered questionnaires completed was 900.

\*By Carole A. Davis.

Major areas of information obtained from the survey include demographic characteristics of the home canner, sources of canning instructions used, kinds and amounts of fruits and vegetables canned, methods and procedures used, extent of spoilage encountered, food safety awareness and practices followed in canning, and future plans for home canning. The results will help us to more effectively aid the consumer and will be useful in identifying research needs.

## RESULTS

Results from the national survey on home canning indicate that one out of three households canned fruits and vegetables at home in 1975. These foods were canned by one out of five households in large metropolitan areas as compared to one out of two households in rural areas. A smaller percentage of those in the Northeastern as compared to those in the North Central, Southern, and Western areas of the country canned these items.

### DEMOGRAPHIC CHARACTERISTICS OF HOME CANNERS

The profile of the home canner that emerged from the survey indicates that:

The usual home canner is between 25 and 64 years of age (2 out of 10 were 25-34 years; 3 out of 10 were 35 to 49 years; and 2 to 3 out of 10 were 50-64 years). Only 1 out of 10 was younger and 1 out of 7 was older;

Two out of five home canners were high school graduates with about one out of four having some college or vocational training;

A little more than half of the home canners were not employed. Of those working about half held part-time jobs;

Proportionately more of those canners without children and who were employed were employed full time;

Canners under 50 years of age generally came from households with three or more members, while those 50 years and older lived in one or two member households;

About 6 out of 10 canners came from households with a total income between \$5,000 and \$20,000;

Those with household incomes above \$12,500 were more likely to be between 25 and 49 years of age;

Almost three-fourths of canners had at least 2 years canning experience; and

Of those who canned both in 1974 and 1975, about 10 percent had some food spoil in both of these years while 15 percent had spoilage in just one of those years.

Some of the major findings about respondent characteristics are shown in table 1.

### SOURCES OF CANNING INSTRUCTIONS

Home canners obtained instructions from many sources—some more reliable than others. Friends or relatives were the source of instructions for almost two-thirds of the canners, while two out of five used cookbooks. USDA publications, extension service publications, personal recipes, canning equipment manufacturer's cookbooks, and mag-

azines or newspapers were each used by 1 out of 10 canners. Some of the instructions appearing in cookbooks, magazines, and extension publications, however, could have originated from USDA research. Even some of the directions obtained from friends or relatives could have come originally from USDA material.

A greater percentage of canners with some college education than those with less education used USDA and extension service publications. More of those under 35 years of age than older, more with children than without, and proportionately more who were employed full time than not employed, obtained instructions from friends or relatives. More canners under 50 years of age than older, more of those who had more than a high school education than those with less education, more households with five or more members than one member, and more households with annual incomes above \$12,500 than those with incomes below \$5,000 used cookbooks as a source of instruction. Proportionately, more of those having spoilage both in 1974 and 1975 than those not having spoilage used cookbooks.

#### KINDS AND AMOUNTS OF FRUITS AND VEGETABLES CANNED

Tomatoes were the most popular food item canned. Of those households canning fruits and vegetables, three out of four canned tomatoes. Other vegetables, pickles, and fruit were each canned by one out of two households. Tomato sauce and vegetable mixtures were each canned by about one out of five households, and about two out of five preserved jams and jellies.

The total volume of fruits and vegetables, excluding jams and jellies, canned by households was determined by using a quart as the common denominator of measurement. The number of different sized jars of food canned in 1975 by each household was converted to quarts and totaled. About 10 percent of households canned a total volume equivalent to less than 12 quarts, 40 percent canned 12 to 49 quarts, and 25 percent canned between 50 and 99 quarts. One-fifth of the households canned between 100 and 249 quarts, but only about one out of 16 canned more than 250 quarts.

In general, there was no relationship between the total volume of fruits and vegetables canned and employment status or income level. Relative to household size and volume canned, as expected, more households with two or more members than those with one member tended to can a total volume of 75 or more quarts.

#### HOME CANNING EQUIPMENT USED

*Containers.*—Most canners (94 percent) used jars designed especially for canning when canning vegetables and fruits other than jams or jellies. However, one-third used other jars, such as peanut butter, coffee, and salad dressing; therefore, some canners used both home canning jars and nonstandard jars. Less than 1 percent of canners used tin cans.

The USDA recommends the use of jars designed especially for home canning so that jars will be properly heat tempered, resistant to mechanical shock, of the right size for the established processing time and temperature, and the proper size to fit standard home canning closures.



More canners with at least 2 years of canning experience than with 1 year used jars not designed for home canning. A greater percentage of those having spoilage in 1974 and 1975 than those not having spoilage in these 2 years used nonstandard jars for home canning. Proportionately more households with five or more members than those with one or two members used nonstandard jars. Income level did not seem to affect the use of one kind of jar over another, as about the same percentages of households regardless of income used standard home canning jars.

The most popular sizes of home canning jars used were the quart and the pint, by 85 and 65 percent of the canners, respectively. Only about 1 out of 10 used half-pint jars and relatively small percentages used the 2-quart and 1½-pint jars. USDA publications primarily contain processing recommendations for foods canned in quart and pint jars. However, processing recommendations are included for a few products in half-pint jars.

*Lids.*—About 90 percent of canners of all ages used new flat metal lids with metal bands for canning fruits and vegetables, other than jams or jellies.

Porcelain-lined zinc caps and reused flat metal lids with metal bands were each used by 1 out of 10 canners. Directions are included in our publications for the use of zinc caps as well as two-piece lids with flat metal discs and bands. However, we do not recommend reusing flat metal lids because once an indentation has been made in the sealing compound by the jar rim, the lid may not seal properly the second time.

Although paraffin should only be used for jellies, 13 percent of canners used paraffin for sealing fruits and vegetable products.

There was a trend for more of those under 50 years of age than older to reuse flat metal discs. Canners over 65 years of age were more likely to use zinc caps than were the younger ones.

#### HOME CANNING METHODS USED

Slightly more than two-thirds of home canners used the open-kettle method for canning fruits and vegetables, including jams and jellies, and more than half, or 60 percent, used the boiling-water-bath method. The pressure canner was used by 3 out of 10 canners and 1 out of 10 used the pressure saucepan (holds only pints). Only about 2 percent of canners used the oven method.

As age of canners decreased they were more likely to use the boiling-water-bath method of canning. This method was used by more of those who had completed high school or some college than those with less education, by more households with three or more members than those with fewer members, and by more households with children than with no children.

As the level of education decreased from college to less than high school training and as the age of canners increased they were more likely to use the open-kettle method of canning. New canners were less likely to use this method.

The Department recommends the boiling-water-bath method for processing fruits, tomatoes, pickles, and jams, and the use of a pressure canner or pressure saucepan for all vegetables, except for to-

atoes. Processing times and temperatures have not been established by USDA for tomato sauce and vegetable mixtures.

Open-kettle canning is not recommended. With this method food is cooked in an ordinary kettle, then packed into hot jars and sealed. The food is not processed after packing in the jars. Open-kettle canning is not a safe practice because temperatures obtained are not high enough to destroy all the spoilage organisms that may be in low-acid foods, such as vegetables other than tomatoes. Spoilage bacteria may also enter the food when it is transferred from kettle to jar, making it undesirable to can other foods, such as fruits, pickles, and tomatoes by this method.

Oven canning is not safe because jars may explode, causing personal injury or damage to the oven. Also, temperatures obtained in the food in jars during oven processing do not get high enough to insure destruction of spoilage bacteria in low-acid foods, such as vegetables. Times specified for boiling-water-bath processing of foods are not applicable to oven processing since the rate of heat penetration would be different in the oven.

Table 2 shows the method of processing utilized by the home canners for each product they canned. Since more than one response was possible, percentages given will not total 100. About half of those canning fruits, tomatoes, and pickles, and more than one-third of those canning tomato sauce used the boiling-water-bath method; however, more than half of those canning pickles used the unrecommended, open-kettle method, as did almost one-half of those canning fruits and tomato sauce and one-third of those canning tomatoes. Pressure methods—either the pressure canner or pressure saucepan (holds only pints)—were used by one-fifth of those canning fruits and tomato sauce, and one-fourth of those canning tomatoes.

More than half of those canning vegetables other than tomatoes and almost half of those canning vegetable mixtures used pressure methods of canning, while about one-third of those canning vegetable mixtures and other vegetables used the boiling-water-bath method, which is inadequate for these products. The open-kettle method, which is not recommended was used by one-fourth of those canning vegetable mixtures and about one-sixth of those canning vegetables.

More than three-fourths of those canning jams and jellies used the open-kettle procedure. The boiling-water-bath was used by about one-tenth of those canning jams and jellies. About 5 percent of those canning jams and jellies used pressure methods.

The oven method, which is not recommended, was used by very few households—only 1 percent of those canning fruits and less than 1 percent of those canning vegetables, jams, or jellies.

#### HOME CANNING PROCEDURES USED

*Type of pack and filling containers.*—Fruits and vegetables may be packed raw into jars or they may be preheated and packed hot. About half of the canners used the raw pack, in which unheated food is placed into jars. More of those with at least 2 years of canning experience than with 1 year used the raw pack. A greater percentage of those under 65 years of age than older tended to use this pack.

Raw peas, corn, or lima beans must be packed loosely into jars because, unlike other raw vegetables, they will expand during processing. If they are packed tightly there is danger of underprocessing. Only 15 percent of canners used the raw pack for peas, corn, or lima beans, and of this number 1 out of 10 correctly packed them loosely. About one-half packed the vegetables fairly loosely, while about one-third packed them tightly. A greater percentage of those under 35 years of age than older incorrectly packed vegetables tightly.

Raw fruits and vegetables, other than raw peas, corn, or lima beans, can be packed into jars tightly because they will cook down or shrink during processing. About half of the canners packed raw vegetables tightly. Fewer canners 65 years and older packed these vegetables correctly than those under 65.

Three-fourths of canners used the hot-pack method in which fruits and vegetables are heated, then packed into hot jars. To avoid underprocessing, jars should be packed fairly loosely, as the food will not cook down during processing. Half of the canners packed jars fairly loosely, while more than one-third incorrectly packed them tightly.

After raw or heated fruits or vegetables are packed into jars, the food in the jar should be covered with boiling hot liquid. About half of the canners who used the raw pack method used boiling liquid to cover food. Three out of 10 incorrectly used cold liquid or liquid that was not boiling. As the age of canners increased and as the level of education decreased they were less likely to cover raw vegetables with boiling liquid. More than half of those using the hot-pack method covered heated vegetables with boiling liquid rather than with liquid that was not boiling.

*Checking seals.*—Almost all canners, or 95 percent, checked jars the day after canning to see if the jars were sealed. There were no differences among demographic characteristics of canners relative to checking jar seals.

About half of those who checked seals found jars that did not seal properly. A greater percentage of those under 50 years of age than those older had containers that did not seal. Among canners that found unsealed jars, 6 out of 10 used the food immediately, about one-third discarded the food, and one-fourth recanned the food—starting as if it were fresh. About 6 percent froze the food from unsealed jars. Any of these responses could be suitable, depending on the number of jars that did not seal. For example, if a dozen or so jars were found to be unsealed, the food would either need to be recanned, frozen, or discarded because it would be difficult to use that amount of food immediately.

A greater percentage of canners 65 years and older than of those younger discarded unsealed food, as did more canners in one or two member households than in households with five or more members. Canners who were not high school graduates rather than those with higher education tended to discard the food.

A greater percentage of those under 65 years of age than of those who were older used unsealed jars of food immediately, as did more of those with at least 2 years canning experience than with less experience, more of those with children than with no children, more households with three or more members than those with one or two members, and

more of those who had completed high school or some college than those with less education.

As the educational level of canners increased there was a tendency for canners to recan unsealed jars of food as if it were fresh.

*Preparation of canned food for serving.*—The Department recommends that home canned vegetables be boiled for at least 10 minutes before serving. One out of two canners prepared canned vegetables in this way. However, one-third of the canners only brought canned vegetables to a boil before serving, and one-fifth served canned vegetables without any heating. Of those who served canned vegetables without heating there were no differences among age groups, educational levels, or among those with or without canning experience.

*Length of storage of home canned foods.*—For optimum quality home canned foods should be used within 1 year. However, properly processed foods may remain safe to eat if stored longer than a year if the seal is not broken and other spoilage signs are absent. Nearly two-thirds of home canners stored home canned food, including jams and jellies, for 6 months to 1 year, about one-third stored food more than a year, and about 6 percent kept foods for less than 6 months.

As the age of canners increased, they were more likely to store home canned food for more than 1 year; however, as the educational level increased, they were less apt to store canned food for more than 1 year. Proportionately, more households with 1 member than those with 3 or more members, proportionately more with incomes less than \$5,000 than those with incomes above \$12,500, and more households with no children than those with children stored canned food for more than 1 year. A greater percentage of canners with some college education than those with less than high school training stored food 6 months to 1 year.

#### RECOGNITION OF SPOILAGE SIGNS IN CANNED FOODS

Most home canners are aware of some of the signs of spoilage in canned foods, including jams and jellies. Ninety percent recognized a bulging lid as a sign; leakage, mold, and off-odor were each recognized by about three-fourths of canners as signs. About two-thirds thought off-color would be a sign, while about half thought spurting liquid would be a spoilage sign. Almost one-third of canners thought floating fruit or vegetable in the jar would be an indication of spoilage. Unlike the other signs, which are an indication of spoilage, floating fruit or vegetable is not a spoilage sign. Fruit or vegetables may float because the pack is too loose, some air remains in the tissues of the product after heating and processing, or in the case of fruits, the sirup is too heavy.

Similar percentages of canners of all ages recognized spoilage signs of canned foods, except more of those under 35 years of age than between 50 and 64 years recognized mold as a sign, and more of those above 50 years than under 35 years thought spurting liquid was a spoilage sign. As the educational level of the canners increased, they were most likely to recognize spoilage signs.

The presence of botulinum toxin in canned foods is not always indicated by a visible sign; thus food may be spoiled when spoilage signs are not evident. Two out of five home canners thought that canned foods could be spoiled without spoilage signs and approximately the same number incorrectly thought that if foods were spoiled



there would always be some sign of spoilage. As the age of the canners increased they tended to incorrectly think that there would always be some sign of spoilage. But as the educational level of the canner increased they were more apt to believe that canned foods could be spoiled without any sign.

#### SPOILAGE EXPERIENCED BY HOME CANNERS

About one-fourth of canners had home canned fruits or vegetables that spoiled in 1975. The survey did not determine the actual causes of spoilage, but information given by respondents indicated that incorrect procedures had been used in many cases.

Table 3 compares the percentage of households experiencing spoilage with each type of food—fruits, tomatoes, tomato sauce, other vegetables, vegetable mixtures, pickles, jams, and jellies—to the percentage of households that canned the food.

Tomatoes were canned by three-fourths of the households, with one-fifth experiencing spoilage. Similar percentages of those reporting spoilage of tomatoes used the boiling-water-bath and the open-kettle methods.

Tomato sauce and vegetable mixtures were each canned by one-fifth of the households. Of those that canned tomato sauce, 3 percent had spoilage; about one-third of the 3 percent had used the boiling-water-bath and about one-third had used the open-kettle method. USDA does not have a processing time for this product; however, the open-kettle method is not recommended. Of those that canned vegetable mixtures, 7 percent experienced spoilage, and of these, similar percentages used the boiling-water-bath, open-kettle, and pressure-canner methods. Processing of vegetable mixtures would require the use of a pressure canner.

Canned fruits, other vegetables (not tomatoes), and pickles were each canned by about half of the households. Spoilage was observed by 7 percent of those canning fruits and 5 percent of those canning pickles. The open-kettle method, which is not recommended, was used by approximately half of those who had spoilage of fruits and pickles. Of those canning other vegetables 10 percent had spoilage. About half of those having spoilage used the boiling-water bath, a method which would result in an inadequate process for these low-acid foods.

Only a small number of households that preserved jams and jellies had spoilage of these products. For these products the open-kettle method was used.

About two-thirds of those having spoilage of home canned foods in 1975 had an idea as to the cause. About three-fourths thought food spoiled because the lids did not seal and one out of 10 thought food was processed for too short a time. Other reasons, such as the wrong processing method, food having been packed too tightly into the jar, and that food having been overripe when processed were each given by 3 percent of canners as possible causes of spoilage.

Home canning jars were used by 94 percent of those canning fruits and vegetables other than jams and jellies, while only about one-third used other jars; therefore, it would be expected that a larger proportion of home canning jars could be involved in spoilage. Our findings showed that about 9 out of 10 of the 25 percent of canners having



spoilage used jars designed for home canning, and about one-fifth used other jars.

One would expect that those with higher income levels would be inclined to use only jars designed for home canning rather than other jars, but our findings showed that greater percentage of households with income of \$20,000 or more than households with less income tended to use nonstandard jars for foods that spoiled.

Of the 25 percent of households having spoilage, more than three-fourths used new flat metal lids with metal bands, about one-tenth reused flat metal lids. Again, as with the home canning jars, a large proportion, or 90 percent of canners used new flat metal lids for canning fruits and vegetables, while only about 10 percent reused flat metal lids. Porcelain-lined zinc caps and glass lids with rubber rings and wire bails were each used by 5 percent of canners; about 3 percent of canners used paraffin to seal jars. It appeared that a greater percentage of those 35 to 49 years of age than of older or younger canners reporting spoilage tended to use paraffin or reused flat metal lids for sealing jars.

#### HOME CANNING PLANS

About 85 percent of those canning in 1975 also planned to can in 1976, about 8 percent were unsure as to whether they would can or not, and 5 percent did not plan to can in 1976. A greater percentage of households with two or more family members than those with one member planned to can in 1976. There were no significant differences in employment status, income level, or life cycle relative to 1976 home canning plans.

#### SUMMARY

One out of three households canned fruits and vegetables at home in 1975. Tomatoes were the most popular food item canned. Of those households canning fruits and vegetables, three out of four canned tomatoes. Other vegetables, pickles, and fruits were each canned by one out of two households. The survey indicated that many canners followed some procedures that are not recommended by USDA such as:

- Using nonstandard jars rather than jars designed especially for home canning;

- Reusing flat metal discs from the two-piece metal lid with band;

- Using the open-kettle method for canning fruits and vegetables, other than jams and jellies;

- Using the boiling-water bath for canning vegetables other than tomatoes;

- Packing or filling jars too tightly;

- Serving home canned vegetables with no further heating; and

- Using paraffin to seal home canned fruits and vegetables, other than jams and jellies.

Approximately one-fourth of the households reported some spoilage in their home canned fruits and vegetables. Although the survey did not determine the actual cause of spoilage, three out of four canners thought spoilage was due to lids that failed to seal properly. Some spoilage undoubtedly resulted from use of improper methodology.

Home canners need to be cautioned to follow reliable instructions, such as those found in USDA home canning publications, to reduce the risk of spoilage that can result in economic loss from wasted food or in illness.

Table 1.—Respondent characteristics

<i>Characteristic</i>	<i>Percent</i> <sup>1</sup>
Employment:	
Currently employed.....	42
Full-time.....	54
Part-time.....	44
Not employed.....	56
Education:	
Grade school or less.....	17
High school or less.....	18
High school graduate.....	36
Vocational training.....	5
College or more.....	23
Age:	
Under 25.....	10
25-34.....	21
35-49.....	28
50-64.....	25
65 and over.....	15
Household size:	
1.....	9
2.....	31
3 or 4.....	38
5 or more.....	22
Income level:	
Under \$5,000.....	14
\$5,000 to \$12,499.....	30
\$12,500 to \$19,999.....	27
\$20,000 and over.....	11
Life cycle:	
Children.....	53
No children.....	47

<sup>1</sup> Percentages in individual categories do not of necessity total 100 as all respondents did not furnish all information.

TABLE 2.—PERCENTAGES OF HOUSEHOLDS CANNING SPECIFIED TYPES OF FRUIT AND VEGETABLE PRODUCTS BY PROCESSING METHOD, 1975

Method	Households <sup>1</sup>	Method	Households <sup>1</sup>
Boiling-water-bath, total.....	61.0	Vegetable mixtures.....	38.0
Fruits.....	53.0	Pickles.....	4.0
Tomatoes.....	52.0	Jams.....	2.0
Tomato Sauce.....	41.0	Jellies.....	3.0
Other vegetables <sup>2</sup> .....	40.0	Open-kettle, total.....	70.0
Vegetable mixtures <sup>2</sup> .....	34.0	Fruit <sup>2</sup> .....	45.0
Pickles.....	45.0	Tomatoes <sup>2</sup> .....	35.0
Jams.....	13.0	Tomato sauce <sup>2</sup> .....	43.0
Jellies.....	10.0	Other vegetables <sup>2</sup> .....	14.0
Pressure cooker (saucepan), total.....	10.0	Vegetable mixtures <sup>2</sup> .....	26.0
Fruits.....	4.0	Pickles <sup>2</sup> .....	57.0
Tomatoes.....	4.0	Jams.....	85.0
Tomato Sauce.....	4.0	Jellies.....	87.0
Other vegetables.....	10.0	Oven, total <sup>2</sup> .....	2.0
Vegetable mixtures.....	5.0	Fruits.....	1.0
Pickles.....	2.0	Tomatoes.....	.6
Jams.....	2.0	Tomato sauce.....	.5
Jellies.....	3.0	Other vegetables.....	.4
Pressure canner, total.....	31.0	Vegetable mixtures.....	.5
Fruits.....	16.0	Pickles.....	.....
Tomatoes.....	21.0	Jams.....	.8
Tomato sauce.....	18.0	Jellies.....	.6
Other vegetables.....	47.0		

<sup>1</sup> Components cannot be totaled because more than 1 response is possible.

<sup>2</sup> Results in inadequate processing.

TABLE 3.—PERCENTAGES OF HOUSEHOLDS CANNING FRUIT AND VEGETABLE PRODUCTS AND OF HOUSEHOLDS HAVING SPOILAGE OF THESE PRODUCTS, 1975

Product	Households	
	Canning	Spoilage
Fruits.....	50	7
Tomatoes.....	75	20
Tomato sauce.....	20	3
Other vegetables.....	50	10
Vegetable mixtures.....	20	7
Pickles.....	50	5
Jams.....	40	2
Jellies.....	40	1

## OUTLOOK FOR HOUSING AND MORTGAGE MARKETS

(By Marshall A. Kaplan, Director, Special Studies Division, Office of  
Economic Research Federal Home Loan Bank Board)

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I'm sure that I don't have to tell this audience that any predictions about housing and mortgage markets need to be carefully related to the basic economic and financial assumptions on which they rest. This is particularly the case because we have a new administration coming into office early next year. This will certainly affect national economic and housing policies in ways that we can only dimly perceive at this time.

In projecting housing starts in the short-run, we also have to recognize that housing starts fluctuate around a longer-run trend that reflects basic market demand. Some recent studies indicate that we will need to have an average of 2.4 million housing units per year. This is to meet household formation and offset the deterioration of the housing stock and demolitions over the next 10 years.

I am personally skeptical about our ability to make such forecasts. They depend upon rather arbitrary assumptions about the so-called headship rate that represents the proportion of people who will be heads of households and also our ability to appraise the future condition of the housing stock. If household formation could be projected solely on the basis of demographic factors, it would be simple to forecast. Unfortunately, it is also influenced by sociological and general economic trends that we can only speculate upon.

To give an example of the arithmetic involved, a recent study by Data Resources, Inc., indicates that household formation would average 1.16 million per year through 1985 based on the headship rates that existed in 1975. But DRI projects continued increases in the headship rate that would bring the average annual household formation rate up to 1.58 million per year. Thus, we get a demand for an additional 420 thousand housing units per year. This is based on what may turn out to be an accurate assumption about the headship rate, but it does involve a large element of guesswork.

Having said this, however, it is almost certainly the case that housing production this year is under a normal market demand as projected under a wide band of assumptions. It used to be the case that sharp fluctuations in housing starts (to which we must now add mobile homes as part of the housing stock) were almost entirely due to fluctuations in the credit market. Those, in turn, were associated with business cycles. Housing would typically begin to strengthen during recessions and turn down sharply as we approached boom periods—a pattern in line with changes in interest rates and credit market availability.

More recently we discovered that an especially severe recession—such as we had in late 1974 and early 1975—particularly coming on

the heels of inflation, could upset this normal pattern. Thus, the sharp decline in housing starts in late 1974 was affected very much by the unusual phenomenon of decline in household real disposable income. The subsequent housing recovery was held back by the continued impact that this had on the ability of individuals and families to afford housing. The very large availability of housing credit that we have experienced has not had the degree of stimulus on housing that previous post-World War II experience would indicate. The big question mark now is whether we are approaching once again a more normal housing market in which short-run fluctuations in housing will be primarily a function of credit market conditions.

Shifting from such general questions to specifics, I believe that a best prediction of housing starts for next year is 1.65 million units compared to this year's likely total of 1.50 million units. Mobile home shipments should be over 200 thousand units next year compared to 250 thousand units this year. Including mobile home units as part of housing production means that we should have 1.95 million new housing units next year compared to 1.75 million this year. I see most of the strength next year coming from the apartment sector with most of this the result of the federally subsidized Section 8 program. There will be some increase in single-family starts, perhaps stimulated by the new Section 235 subsidized program. This assumes no major expansion in these or other Federal housing subsidy programs by the new administration. The impact of any expansion in these programs on housing starts would be uncertain, however, since studies show that housing starts under some subsidized programs largely substitute for nonsubsidized housing starts. Hence, it is not clear to what extent federally subsidized programs increase total starts.

Many of you may be aware of the large jump in housing starts reported for the month of September. The fact that the October housing starts figure came out 2 days ago, about a week before I put together my written comments, makes it a little rash to discuss the current situation. However, it is likely that the improvement in housing starts in September exaggerates any upward trend in housing starts. The escalation in housing costs remains a deterrent to housing demand although this is offset to some extent by the continued improvement in real disposable family income and the trend of both spouses working. We are moving into a new era in which the income from both spouses working is an increasingly important factor in permitting households to afford housing at today's high prices.

Before dwelling on the housing market in greater detail, let me give you the underlying economic and financial assumptions behind my housing forecast. I hope that this is not at significant variance with your speaker on the Economic Outlook. I am assuming that the current weakness in the economy will probably come to an end in the near future although the economy is not likely to pick up strongly for some time ahead. The pickup in the economy by itself would not likely cause much of a rise in interest rates except for the fact that the prospects for inflation do not seem terribly good to me.

The rise in the consumer price index has been close to a 6 percent per annum figure over the last 6 months, and the behavior of wholesale prices has been even worse. This has occurred despite large declines in the prices of most meats and poultry, which inevitably are



bound to level off and turn around. Increases in industrial commodity prices in the wholesale price index have been rather rapid in recent months, and we would normally expect these to get imbedded in consumer prices in future months. Skipping over the many other factors involved in making a price forecast, I merely express my belief that we may be experiencing increases in the consumer price index above 6 percent per annum next year.

Such an inflation outlook will tend to push up interest rates more rapidly than the outlook for economic growth by itself suggests. This is because interest rates contain a substantial inflationary premium and are going to be sensitive to changes in prices. As a result, I expect that the 3 month Treasury Bill rate, which is currently about 4.9 percent, could well reach  $6\frac{1}{2}$  to 7 percent toward the end of next year. Since short term interest rates are the major factor in determining the flow of funds into savings and loan associations (S&Ls) and general housing credit availability, this suggests a financial climate next year not as good as what we currently have.

Nonetheless, the flow of funds into S&Ls this year has been exceptional and it would be surprising if it could be duplicated next year. Savings flows could well reach a record \$51 billion this year to which we have to add \$38 billion from loan repayments as a further source of funds for mortgage money. Since I don't expect any real sharp run up in interest rates during most of next year, savings flows could still be quite substantial for S&Ls even though down from this year's record. Interest rates on new mortgage loan commitments have come down somewhat recently, so that we will be going into 1977 with mortgage interest rate levels that are favorable by recent historical standards. In terms of mortgage interest rates, the early part of next year may well be a good period for home buyers but, as the year progresses, mortgage interest rates are likely to creep up again.

Let me turn now to the internal dynamics of the housing market split into its two major categories—single family housing and apartments. I will not touch on mobile homes despite its importance to the housing market because I lack the kind of data on mobile homes necessary for a careful analysis of the prospects for this segment of the housing market.

#### SINGLE FAMILY HOUSING

My most probable forecast for the number of single-family starts for 1977 is 1.2 million units. This would represent a 50,000 unit increase over this year's estimated 1.15 million single-family starts.

I do not believe that single-family starts next year can reach the record level of 1972 because the latter was aided by two factors that are not present in today's housing market. One was a boom mentality among builders that led them to add a large number of housing units to their unsold inventory in anticipation of future sales. There is not much speculative building of this type going on today. The other is the very large number of federally subsidized single-family units started in 1972 under the Section 235 program. This coming year we will be getting an increasing number of units under the revised Section 235 program, but the number of units will still be much smaller than in the early 1970's and the revised program involves a shallower subsidy than the original program.

An important aspect of the single family market that is likely to persist into next year is the increasing share consisting of units that are not on the market for sale. Rather these units are being constructed to order for the owner and, in some cases, by the owner himself. An unusually large number of single family starts are currently in non-permit issuing areas, which are generally rural in nature or at least beyond current suburban areas. These units do not get into the sales statistics and may explain why single family starts this year have improved much more than official statistics on new home sales would indicate. Thus, the ratio of single-family starts to sales during the first 9 months of this year was 1.82 compared to a ratio of 1.64 last year.

A major obstacle to a single family housing *boom* rather than merely a *good* year is the fact that housing costs remain a serious deterrent to the ability of builders to construct homes suitable to first time home purchasers. According to Census statistics, the median price of homes sold in September of this year was \$45,200. This represents a 14 percent increase over the same month last year. There has been a large regional divergence in the rise in new home prices, with the rise greatest in the West and North Central States, more modest in the South and least in the Northeast States. The sharp rise in prices has occurred despite the attempt of builders to economize on the use of expensive land and to eliminate certain frills that used to be standard on homes.

Many factors have contributed to the recent steep rise in new home prices. Perhaps the major one has been the increase in the cost of developed land, where environmental and zoning factors have tended to hold down the supply. Over the past year, lumber and plywood prices have risen much more sharply than we would have expected based on the only modest increase in housing starts.

Despite the role that I ascribe to the escalation in housing prices, I want to put this in historical perspective. It is true that home prices have been outrunning family income in recent years so that the ratio of the median family income was up to 2.86 in 1975 compared to 2.39 in 1970. However, the median sales price in the early 1970's was held down by the low prices on heavily subsidized Section 235 houses. The ratio of house prices to family income in 1975 was about the same as during the 1960's. It is only in the last year that this ratio may be above the historical norm.

In my opinion, it is not so much the price of new homes that has been a deterrent to home sales but the sharp rises in the operating cost of homes as reflected in much higher utility bills, real estate tax payments, home insurance payments, and the cost of maintaining a house. In fact, in light of these factors, it is amazing that the single family market has been as strong as it has been this year. It would appear that households are willing to allocate a larger percentage of their budget for housing. Undoubtedly, the single family housing market has been stimulated because of the high rate of household formation, the continued strong attachment of the average household to home ownership, and the fact that an increasing number of households now have both spouses working.

In analyzing the single family market, we must take account of the fact that the majority of housing starts are designed to permit exist-

ing home buyers to purchase a better home. These buyers already own an existing home and can afford a new and more expensive home because of the large equity that they have already accumulated in their present home.

The same situation is not true with respect to first time home purchasers. They are finding the going much rougher. It is likely that a higher percentage of them are buying existing rather than new homes since existing homes are generally cheaper than new homes although the gap between the median price of new and existing homes has been narrowing in recent years. In this connection I should note that we develop a distorted impression of what is going on in the housing market by focusing too much on housing starts. There are normally far more sales of existing homes than those of new homes and, at the present time, the ratio of existing to new home sales is even higher.

In September of this year there was a seasonally adjusted annual rate of 3,330,000 existing homes sold. This compares with 734,000 new homes sold. Another factor to remember is that there has been a sharp increase in spending by existing home owners for additions to their home or major remodeling jobs. This means that there is a substantial improvement in the existing housing stock that does not get reflected if we look at housing starts. This is contributing to a more efficient utilization of the existing housing stock.

#### MULTI-FAMILY HOUSING

Let me touch briefly on the apartment market. This has been the weakest sector of the housing market since housing starts began to recover in the second quarter of 1975. Apartment starts remain far below the peak reached in the early 1970's. While almost 1 million apartment units were started in 1972, only 234,000 units were started last year. We have truly had a boom and bust cycle in apartment construction.

However, the rate of apartment construction in the early 1970's was fueled by considerable overbuilding, in part due to an overwillingness of lending institutions to provide funds available as a result of easy credit conditions. You have all heard what has happened to real estate investment trusts, which did much of the construction lending for apartment projects. Other lending institutions have also suffered as a result of losses incurred on many of these new structures. The result has been to make everyone—builders and lenders alike—rather cautious about putting up new apartments, whether rental or condominium. This caution has made lenders scrutinize new apartment projects with a fine tooth comb and demand clear evidence of profitability.

For reasons that are not altogether clear, construction of apartment units has been held down by a lack of profitability in many areas of the country. Thus, in September the index of rents in the consumer price index was only 5.6 percent above that a year ago. This is quite modest when we consider the large increase in both construction and maintenance costs in recent years. Over a longer period of time the rise in rents has been lagging behind consumer prices in general.

With the low level of multi-family construction over the last several years, we should be expecting a tightening in the rental market and this is beginning to occur. Thus, on a seasonally adjusted basis, 85 per-

cent of rental multi-family units completed in the first quarter were rented within only 3 months. This is a substantial improvement in market absorption over that of recent years. There has even been a fairly good improvement in the market absorption of condominium units coming onto the market although the absorption rate in this area of the apartment market is still well below that of several years ago. There has also been a decline in the national rental vacancy rate to 5.7 percent in the third quarter of this year from a range of 6.0 to 6.3 percent during 1974 and the first three quarters of 1975. I would have expected an even larger decrease in the vacancy rate, but it may be that the combined impact of recession and inflation has continued to hold down the number of those who can afford to occupy their own apartment unit. In light of the figures that I have just given you on the market absorption rate and the rental vacancy rate, it remains puzzling as to why the rise in rents nationally remain so modest.

At the moment the only significant rise in apartment starts is occurring as a result of the Section 8 leased housing program. There is a large backlog of approved projects under the Section 8 program, but these projects have only been getting under construction in the last several months. The effect of housing starts under the Section 8 program has been to inflate the number of multi-family starts and to obscure the fact that the economics of apartment construction is still not favorable for a significant rise in unsubsidized multi-family housing starts. In substantial part because of the Section 8 program, I am projecting 450,000 multi-family starts next year compared to 350,000 units this year.

#### MORTGAGE MARKETS

I expect that the housing markets, at least during the first half of next year, will be aided by good housing credit availability. While I expect a rising trend in interest rates over much of next year, we will be going into early 1977 with still relatively low short term interest rates that will be bringing with them continued record flows of funds into thrift institutions. Interest rates on new mortgage loan commitments have edged down over the last month or so and there may be some further slight decline in some areas of the country over the near future. It is quite likely that mortgage interest rates will be relatively stable during the first half of 1977 although mortgage interest rates may rise moderately as the year progresses in response to what I hope will be a strengthening in the economy and what is, unfortunately, likely to be some increase in the rate of inflation.

In conclusion, I would like to touch briefly on a development that will become increasingly important. This is the use of mortgage instruments other than the long term fixed interest rate mortgage that most of us have thought of as synonymous with the mortgage instrument itself. Over the past year a large percentage of all home mortgages made in the State of California have had a variable rate provision that allows for an adjustment in the interest rate on existing mortgages that may be up or down but is limited in amount by state regulation. A number of major commercial banks have been issuing variable rate mortgages as well as most of the leading savings and loan associations. Moreover, this development has not been confined to



California but can be found in parts of New England and in a number of other States.

More recently, there has been a great deal of attention given to such types of mortgages as the graduated payment mortgage and the flexible payment mortgage. The stimulus for such new types of mortgage instruments has come from the extremely high rate of inflation in recent years that has made the mortgage instrument less attractive to most lending institutions and has also made the equal monthly payment of the traditional mortgage an obstacle to the ability of potential homeowners to purchase their own house. New mortgage plans under consideration will permit the initial monthly payments to be lower than they currently are and compensate for this by higher payments in the later stages of the mortgage to reflect the fact that there is typically an improving income position of households over their life. Under the flexible payment mortgage, the ability to skew upwards the monthly payment through time is limited by the fact that no negative amortization is allowed, *i.e.* at least interest on the mortgage must be paid in full. Under the graduated payment mortgage, however, negative amortization would be permitted. Flexible and graduated payment mortgages could carry either a fixed or variable interest rate. And there are many other types of alternative mortgage instruments that could be designed.

It is difficult to say at this point how popular some of these new mortgage forms are likely to be and their likely impact on the ability of the average American to own a new home. But there is no question that there is a great deal of ferment going on that may well produce a considerably wider choice in mortgage instruments from both the viewpoint of the lender and the borrower.



## OUTLOOK FOR ENERGY

(By Jerry Ann Penno,\* Director, Office of Consumer Affairs/Special Impact,  
Federal Energy Administration)

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Thank you for inviting me to participate in your National Agriculture Outlook Conference and to speak to you about the outlook for energy. I would like to give you an overview of the energy supply and price situation and to outline new energy programs and legislation which are of particular interest to American families.

First, let me state that there *is* still an energy crisis. We in the Federal Government need your help in conveying that message, for as one who drives 55 miles an hour on an expressway knows, motorists are behaving as though conservation of gasoline were not important. Gasoline usage in mid-September averaged 3.9 percent over last year even though we are more vulnerable today to foreign energy actions than at any time in the past.

U.S. production of oil peaked in 1970 and has since been declining. Our consumption of foreign oil, on the other hand, has *risen* from 36 percent before the embargo to 40 percent this year. The bill for these imports has climbed from \$3 billion in 1970 to \$27 billion last year. Another sharp boost in world oil prices seems almost certain when the Organization of Petroleum Exporting Countries—the OPEC Cartel—meets in December. It is expected that the cost of foreign oil will rise to \$34 billion this year—an amount equal to almost \$160 for every man, woman and child in this Nation! Increased oil prices could mean unemployment, reduced consumer spending, and slower economic growth; and it could add as much as 2 cents per gallon to the pump price of gasoline.

The outlook for natural gas, the energy source used by over 50 percent of the industrial sector and by over half of residences for home heating, is not much better. Production of natural gas has declined by 13 percent since 1973. Proved reserves reported for 1975 are at the lowest figure in 24 years. Reserves, of course represent volumes of gas which are known to exist which can be produced. They are the Nation's most readily available supply of gas. The decline in reserves, coupled with the fact that we are adding less than half of what we are producing annually, gives rise for serious concern about whether we can satisfy essential demands for gas in the future.

Decreases in natural gas supplies have resulted in increased gas curtailments. In other words, gas pipeline companies and gas distribution companies are unable to satisfy customer demands for gas because of a lack of adequate supplies. In many parts of the country, short-

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\*The views expressed in this paper are those of the author and not necessarily those of the USDA.

ages of gas have forced gas companies to place a moratorium on new or additional gas service. This is most unfortunate at a time when the economy is recovering and housing construction is up. As a result, consumers in many places have had to turn to more expensive fuels, such as electricity.

The overall economic impact of these chronic gas shortages will depend on the weather for the coming winter, the capability of the curtailed users to switch to alternative fuels, and the ability of gas companies and other large consumers to avail themselves of measures to purchase emergency supplies of natural gas.

Depending on the severity of these factors, there is always the threat of production slow-downs or shut-downs. In addition, if a given industry is able to continue production by switching to an alternative fuel, the higher costs of conversion to these fuels will be passed along in higher costs of products to the consumer.

Turning now to coal, our coal reserves account for 90 percent of U.S. energy reserves—around three times the energy contained in Middle East oil reserves. Yet because oil and gas prices were so low in the past, and because environmental legislation has made it difficult to mine and burn coal as a fuel source, coal has accounted for only a small portion of our energy use, a large percentage being used by utilities. Increased use of coal will require new technology to mine it, to transport it, and to burn it with minimum harm to the environment. Costs associated with the increased production efforts and with pollution devices will increase the final cost of coal to the utility. This, of course, will result in increased electricity bills.

Incidentally, new legislation extends authority of the Federal Government to require oil and gas burning utility and industrial boilers to convert to coal where it is practical.

Increased costs associated with construction of nuclear power plants, as well as regulatory delays and uncertainty concerning the outcome of nuclear referendums in seven States, has resulted in cancellation and postponement of many plants. With inflation increasing costs daily, the ultimate cost of these plants will be many times the original estimates.

Although the initial cost of solar space heating and hot water systems is expensive, the systems offer substantial economic benefits over their lifetimes to residential users. The advantages, which become evident when considering lifetime costs, are not obvious to the potential consumer, however. Because these devices are new, the resale market has not yet had the opportunity to reflect their life cycle value in resale prices. Doubt over future resale values sometimes influences lending institutions. Lack of experience and lack of standards also make it difficult to obtain warranties. To help remedy this situation, Congress has passed new legislation which authorizes \$2.5 million for FEA in fiscal year 1977 to develop a national strategy to help commercialize solar energy. Mass production and increased markets for solar heating and cooling systems are needed to make the systems more reasonably priced and consequently more popular with consumers.

To help consumers get answers to their questions regarding solar energy, the Energy Research and Development Administration and the Department of Housing and Urban Development have contracted

with the Franklin Institute to operate the National Solar Heating and Cooling Information Center. Consumers anywhere in the United States who want information can call toll free (800) 573-2929 and speak to staff at the center.

The Federal Energy Administration and the Department of Health, Education, and Welfare will soon publish a book which will inform consumers about the basics they should know in order to decide whether or not to invest in solar heating systems. The book, "Buying Solar," explains the tradeoffs between different kinds of equipment and criteria to calculate the life cycle costs.

During the past year Congress passed three major pieces of energy legislation to help increase domestic energy production, to secure our position against any future embargo of foreign oil, and to increase energy conservation.

To help secure the Nation in the event of an embargo, we are building a strategic petroleum reserve of at least 150 million barrels of petroleum by 1978 and up to a billion barrels by 1982. We are establishing standby measures to deal with any severe emergency which may arise and are working with other nations to develop international cooperative contingency plans.

To help increase domestic supplies of oil, new legislation authorizes the full development of four naval petroleum reserves in the United States.

Price controls of crude oil will be gradually lifted and will be completely phased out by 1979 to aid oil producers with the costs of exploration and drilling. To aid consumers who have already been hurt by high oil prices and overall inflation, prices will rise only gradually so as not to cause severe economic strain.

Of utmost importance to consumers is the area of energy conservation. Several significant initiatives are now being begun which will save energy and money for consumers.

One of the main goals of our energy policy, and the one which is probably of most overall importance to consumers, is to reduce the rate of our energy growth from 3.4 percent to 2.5 percent per year. Many conservation measures taken to achieve this reduction will directly impact on consumers by helping them to save energy and therefore dollars. And, as industry finds better ways to conserve energy used in production, the savings will hopefully be reflected indirectly in cost savings of products and services for the end consumer—you.

Appliance manufacturers are now required to provide energy efficiency information on the labels of major appliances. The information will help consumers to make comparative judgments regarding initial cost versus operational costs of appliances. FEA is presently working with the National Bureau of Standards to develop testing procedures. A program to educate consumers on the use of energy labels is now being prepared and will be ready for implementation after basic decisions on the exact content of the labels are made. The Federal Energy Administration is working with the industry to set overall goals for better appliance efficiency.

Auto manufacturers are now producing new cars and light weight trucks which achieve improved gas mileage. Mandatory fuel economy standards require an average of 18 miles per gallon by 1978 and 20 miles per gallon by 1980. These standards will result in better designed

cars, more efficient engines, and savings for consumers. Auto dealers are also required to make available the "1977 Gas Mileage Guide for New Car Buyers" in their showrooms. The new guide, which is a joint effort of FEA and the Environmental Protection Agency, divides automobiles into different size classes according to their interior size in addition to showing the gasoline mileage achieved under test conditions. The interior volume index which is used is an estimate of vehicle interior size that is considered to be more meaningful to consumers than the traditional exterior measurements. All this information should help new car buyers to better compare the fuel economy of similar-size vehicles.

In addition, all new 1977 and later model cars and light trucks will carry a label disclosing the fuel economy, the average fuel cost of operating the vehicle and the range of fuel economies of the cars in its class.

New programs leading to energy savings for homeowners are also being developed as a result of legislative action, the Secretary of the Department of Housing and Urban Development must develop standards for energy efficiency in new residential and commercial buildings within 3 years. States are required to adopt thermal building standards within one year. Construction costs as they relate to energy savings will be considered in developing all standards. The new homes should save consumers many dollars in their fuel bills.

Let me now turn to an area of particular concern to me and to my office—the energy problems of those with low and fixed incomes. These people have suffered the most from high fuel prices. After cutting back their energy use as far as possible they have sometimes had to choose between heating their homes and other necessities, even food. Their homes are often the least likely to be well insulated and they cannot afford to remedy the situation.

Our office has been working with representatives of Federal Human Resource Agencies to come up with solutions to this difficult problem. A version of model legislation drafted by this group was recently passed by Congress. The resulting Weatherization Assistance Program will help low-income persons by insulating over a million residences of low- and fixed-income people.

FEA will make grants to States which may in turn allocate the funds among local governments and community action agencies to administer the program. All low-income households will be eligible to receive weatherization assistance. The determination of which residences to insulate will be made by the State or local agency administering the program.

Under the program, \$55 million is authorized for fiscal year 1977, \$65 million for fiscal year 1978 and \$80 million for fiscal year 1979. At least 90 percent of the funds must be spent on weatherization materials such as ceiling insulation, caulking, weatherstripping and storm windows, as opposed to administrative costs.

The high cost of utility bills, of course, has been an increasing if not the major energy concern of *all* consumers. Besides the high cost of fuel which has been passed on to consumers in their bills, the cost of construction of new plants as well as the daily costs of management have increased with inflation. These costs are often reflected in a higher rate base. As you can see, the utility companies as well as consumers are having problems because of the higher costs, they are



required by law to deliver electricity on demand but are finding it increasingly difficult to raise the capital necessary to construct new plants needed to generate electricity during high demand periods.

FEA has funded a number of utility rate demonstrations in an effort to find solutions to these problems which will be equitable to both consumers and utilities. The majority of these projects are testing the pros and cons of peak load pricing, a rate system which would charge consumers rates for electricity based on the time when it is used. The system is similar to that of the phone company which charges less for long distance calls made after 6:00.

It is hoped that a peak load pricing system could reduce the need for new plants and equipment by spreading out the demand for electricity throughout the day. At the present time, demand for electricity is usually centered around certain times such as dinner time, prime television time and, of course, when there is extremely warm weather. The rest of the time expensive equipment required to meet the demand for electricity at these peak times lies idle. Consumers nevertheless must pay for the purchase and maintenance of this equipment. Peak load pricing would provide households with an opportunity to save money on their utility bills by changing consumption patterns of electricity. Conceivably families which would do their dishes and laundry at off peak hours—late at night or early in the morning—could save money.

Another demonstration program is testing the pros and cons of a lifeline rate. This rate would charge consumers who qualify and who use a certain minimum amount of energy a special low rate. Those who use more than the minimum would be charged at an increasing rate for that which is used above the minimum. Present rate structures usually charge less for electricity used above a certain amount.

It has been anticipated that this lifeline rate could be an aid to low-income consumers who usually use less electricity and who are having an especially hard time paying their utility bills.

Recently Congress authorized \$13 million for additional utility rate demonstration projects.

Finally, I would like to share with you some encouraging information regarding what can be achieved when a serious all-out effort is made to conserve energy. You may be surprised at the source of my example. Consumers have told me as I travel around the country that the Government should set an example for energy conservation. Under the Federal Energy Management Program which was established in 1973, the Government is doing just that. In 1974, energy consumption by the Federal Government was reduced by 24 percent and the savings are being maintained each year. The new legislation tightens mandatory conservation standards for Federal agencies to even further improve the energy practices of the Federal Government.

It is expected that a 10-year program will result in zero energy growth for the entire Federal Government. This saves money for the Government and therefore for the taxpayers as well.

New legislation provides for grants to the States to help them achieve similar levels of energy conservation. State plans include resources to promote the availability and use of car pools, van pools, and public transportation; mandatory lighting efficiency standards for non-Federal public buildings; mandatory thermal efficiency standards



and insulation requirements for new and renovated non-Federal buildings; mandatory standards and policies relating to energy efficiency to govern the procurent practices of a State and its political subdivisions; traffic laws or regulations permitting motor vehicles to turn right at a red light after stopping.

In addition, State programs will include expanded public education efforts to implement energy conservation measures.

At the Federal level the Federal Energy Administration has been actively working to develop consumer information and has produced three films especially for use with consumer audiences. "When the Circuit Breaks," 27½ minutes, explains the reasons for the energy problem and some resource development and conservation measures needed to solve it. "Don't Cut Us Off," 16 minutes, shows what four American communities have done to ease the energy budget problems of low-income and elderly citizens. "Up The Power Curve," 10 minutes, gives energy conservation tips which all people can practice. The movies are available for free from Modern Talking Pictures, New Hyde Park, New York.

All these programs are only a beginning. I am happy that I have had this opportunity to talk to you about our energy problems and some of the solutions to those problems. I hope you will spread the word. An effective energy policy can be developed only with the support of all citizens. The Nation can no longer afford the spendthrift energy values of the cheap energy days. Those days are over.

As home economists concerned with the changing values of society and the family, I hope you will help us to convince everyone of the need for a conservation ethic and I hope we can work together in producing and distributing information on how to achieve this necessary goal.

## HEALTH CARE OUTLOOK

(By Barbara S. Cooper,\* Social Science Research Analyst, Division of Health Insurance Studies, Social Security Administration)

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Health care is the third largest industry in this country employing more than 4.4 million people—5.1 percent of the employed population—in over 50 different occupations.<sup>1</sup> It is also one of the costliest commodities. In fiscal year 1975, about \$118 billion, or an average of \$547 per person, was spent for health, representing about 8.3 percent of GNP.<sup>2</sup>

### *Who pays*

Who pays for this care? Ultimately, of course, we all do, either through taxes, insurance premiums, or directly out of pocket. It is this last method, however, that hits us the hardest. Examining personal health care expenditures—spending for the direct benefit of individuals rather than research, construction, and the like—we find that of the \$103 billion total in fiscal 1975, one-third came directly out of our pockets, one-fourth came from private health insurance and except for a small share from philanthropy, the remainder—about two-fifths—came from the Government. In individual terms this means that we paid an average of \$155 per person out-of-pocket, private health insurance paid \$126, and Government paid \$189. However, the distribution of medical care spending by source of payment differs significantly by type of expenditure and age.

For hospital care, the major item of health expenditures, third parties pay 92 percent of the bill. For other items, though, the third party share is not so generous. We directly paid 35 percent of our physician bills, 85 percent of our dental and drug bills, and 42 percent of the remainder.

Third parties play their largest role in the health spending of the elderly, but then the elderly have the largest bills. The average personal health care bill of an aged person reached \$1,360 in 1975. However, 71 percent was paid by third parties, primarily the Government through Medicare and Medicaid. Nine years earlier, prior to these 2 programs third parties paid just 47 percent of the aged's health bill. For persons under age 65, private health insurance is the primary third-party payor contributing 35 percent of the bill compared with 29 percent from the Government, 2 percent from philanthropy and industry, and 34 percent directly.<sup>3</sup>

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\*The views expressed in this paper are those of the author and not necessarily those of the Social Security Administration.

<sup>1</sup> *Health Resources Statistics, 1974*. National Center for Health Statistics, Department of Health, Education, and Welfare.

<sup>2</sup> Mueller, Marjorie Smith and Gibson, Robert M. "National Health Expenditures, Fiscal Year 1975," *Social Security Bulletin*, February 1976.

<sup>3</sup> Mueller, Marjorie Smith and Gibson, Robert M. "Age Differences in Health Care Spending, Fiscal Year 1975," *Social Security Bulletin*, June 1976.

Despite the assistance from third parties, one way or another we pay and what we have been paying has been going up at tremendous rates.

#### THE INCREASING HEALTH CARE DOLLAR

Since 1965, health expenditures have been rising at an average of 12 percent a year. During this 10-year period health spending has more than tripled—from \$38.9 billion in 1965 to \$118.5 billion in 1975—and its share of GNP has risen from 5.9 percent to 8.3 percent. Preliminary estimates indicate that in fiscal 1976, such spending increased 14 percent and reached \$135 billion or 8.4 percent of GNP.

Why the rapid growth? Three broad factors can be identified: price inflation, product change and the increase in utilization or the quantity of care demanded and supplied. In order to understand a little about how and why these factors operate, we must first understand something about the medical care market.

Health care in this country is considered a necessity along with food, housing, and clothing. It differs, however, from these other necessities in several respects. First, for these other commodities, a certain basic amount is considered necessary and anything above that is gravy. And, in fact, a lot of spending on these items is gravy. For health, while there is certainly a difference between a visit to the clinic and a visit to a Park Avenue physician, there is no set level of spending per person that is considered adequate. The sicker one gets, the more one has to spend. Further, you never are quite sure about what you are buying in health. The difference between steak and hamburger or silk and muslin is obvious. But when a battery of lab tests is ordered, you are not always sure if it is necessary, why you need it, or what you will get when you are through.

Because there is no clear delineation between "necessary" and "luxury" and because consumers are at the mercy of what the providers tell them, the traditional demand/supply theory does not operate in health. This is significantly different from the economic forces operating with the other necessities of life.

In health, supply essentially creates demand. As one study pointed out, "a hospital bed built is a hospital bed filled."<sup>4</sup> With physicians, the other major health provider, the incentives are also operating to increase services and prices. A surgeon does not get paid unless he operates. The more often a doctor sees you, the more money he makes, the more complicated the procedure, the higher the price. I am not suggesting that doctors rub their hands together saying "Aha, another sucker to bilk." Doctors are not all bad! But the incentives toward increasing their income through more services and/or more complicated procedures may be subconsciously influencing their decisions to some extent.

Thus, an unlimited demand along with incentives for more income contribute toward rising prices and increase in use. Also, contributing is the large role of third parties. Because hospitals know that third parties will pay for nearly all they do and all they charge (they are usually reimbursed on a cost basis), there is no incentive for efficiency or cost-consciousness. Similarly, when physicians know that a patient

<sup>4</sup> Shain, Max and Roemer, Milton I. "Hospital Costs Relate to the Supply of Beds," *Modern Hospital*, Vol. 92, No. 4, pp. 71-73, 168, 1959.

has insurance, they do not worry as much about ordering another battery of tests or additional visits to specialists. Nor does the consumer worry much either. In our minds, if it is covered, it is free which is hardly the case.

Third-party payments also contribute to product change, the third major factor in expenditures. Product change results when there is a new way of treating or preventing a condition, be it through new equipment, drugs, procedures, or different skill levels of personnel. This new technology has been responsible for a significant portion of the rise in health expenditures. About half the increase in hospital expenditures is technology-related.<sup>5</sup> Because hospitals are assured of payment, if a new piece of equipment is developed, they go ahead and order it. A recent paper estimates that \$46 a day in hospital expenses today is due to changes in the level of service in the last 9 years.<sup>6</sup> This is not necessarily bad, but it is not all good either. The fact is that in many cases we simply do not know the efficacy or cost-effectiveness of new technology when it enters the marketplace. Even after adoption, we still may not know, since adequate testing does not always take place.

Physicians have not been immune to the same trends that have been affecting hospital care. Physicians are traditionally the central providers of care either directly or in the determination of the other services and supplies used by the patient. It is at the direction of a physician that expenditures for hospital care and drugs are made. One study found that supply factors, including technology and number of physicians, appear to be of decisive importance in determining the utilization of, and subsequent expenditures for, physicians' services.<sup>7</sup>

#### ATTEMPTS TO CONTROL MEDICAL EXPENDITURES

Consumers, policymakers and legislatures have become increasingly concerned about finding ways to curb the explosion of health spending. A number of controls have been tried, including supply limitation through certificate of need for capital construction; financial disincentives to the patient through imposition of deductibles and coinsurance; authorization requirements for hospital equipment purchase and hospital use; review mechanisms and rate regulation. As one report states, "success of these controls in the public and private sectors is spotty."<sup>8</sup>

One of the most successful mechanisms for controlling expenditures has been the development of HMO's or Health Maintenance Organizations. Organized as either a group practice or a foundation of individual practitioners, HMO's generally deliver a comprehensive package of health services to a voluntarily enrolled population on a prepayment rather than a fee-for-service basis. An estimated 6.5 mil-

<sup>5</sup> *Medical Care Expenditures, Prices and Costs: Background Book*. Social Security Administration, Department of Health, Education, and Welfare.

<sup>6</sup> Gaus, Clifton R. and Cooper, Barbara S. *Medicare and Technology: Alternatives for Change*. Prepared for Conference on Health Care Technology and Quality of Care, November 1976.

<sup>7</sup> Fuchs, Victor and Kramer, Marcia. *Determinants of Expenditures for Physicians' Services in the United States, 1948-1968*, DHEW Publication No. (HSM) 73-3013, December 1972.

<sup>8</sup> Rice, Dorothy P. and Wilson, Douglas. "The American Medical Economy—Problems and Perspectives," in *International Health Costs and Expenditures*, DHEW Publication No. (NIH) 76-1067.



lion persons are enrolled in the 181 HMO's existing in the United States today.

The predominant and traditional HMO structure is organized as a group-practice plan in which physicians are salaried, the HMO is at risk for most care (including hospitalization), and primary care is provided in a multispecialty clinic setting often linked to the HMO's own hospital. It has been found in numerous studies that members of group-practice plans have significantly lower rates of hospitalization and surgery than nonmembers. Since members pay on a capitation basis, the HMO incentive is to keep the costliest care—hospitalization—to a minimum. Since physicians are salaried, they get paid whether they operate or not so that unnecessary surgery is often avoided. In other words, while the incentives in the fee-for-service system are for more and more in the costliest manner, the incentives in the group-practice HMO are for less and less in the least expensive manner. This, however, raises the question of quality of care. Since the HMO makes out better by not hospitalizing or not operating, what about the people who really need such care—do they get it? The evidence seems to indicate that they do. No studies have found death rates or disability days to be any higher in group-practice plans than in fee-for-service. Of course, some plans are better than others just as some doctors are better than others. Nevertheless, a recent study comparing the experience of Medicaid enrollees in 8 HMO group-practice plans with a matched sample of nonenrollees found that the fee-for-service group spent  $2\frac{1}{2}$  times more days in the hospital; that both groups had similar outpatient use; both groups had similar accessibility experiences; and both were equally satisfied with care received.<sup>9</sup>

The other major form of HMO is the foundation which resembles the fee-for-service system in organization and method of paying physicians, but includes some additional element of risk for both hospital and physician care by receiving a capitation payment. In the same study referred to above, 2 foundations were compared with the fee-for-service experience and in these cases no statistically significant differences in hospital use was found. It is not clear exactly how much of which factors is responsible for the difference between foundation and group-practice HMO's with respect to hospital use. It could be due to the different financial incentives to the physicians or it could result from the organized nature of group-practice with strong peer pressure and economies of scale allowing for a wide variety of diagnostic and treatment services to be provided without hospitalization.

#### OUTLOOK FOR THE FUTURE

Although HMO's have proven to be an excellent method of cost control and the Government is supporting their development, they will not become the sole health delivery system in the future. What can we expect in the future? President-elect Carter favors national health insurance and its passage is likely. But he has not decided exactly what form he would support nor do we know what form would pass. There were 5 national health insurance bills introduced in

<sup>9</sup> Gaus, Clifton R., Cooper, Barbara S. and Hirschman, Constance G. "Contrasts in HMO and Fee-for-Service Performance," *Social Security Bulletin*, May 1976.



the 94th Congress and one administration bill (CHIP), the year earlier. The bill that ultimately passes is likely to resemble one of these or a combination of several. The provisions of these bills are described in detail in a Social Security Administration report, *National Health Insurance Proposals*.<sup>10</sup> A summary report of the cost-estimates of these bills has recently been released and is available in the Office of the Assistant Secretary for Planning and Evaluation, Department of Health, Education, and Welfare.<sup>11</sup> I will very briefly summarize their analyses here.

*Catastrophic protection: The Long-Ribicoff bill*

This bill provides a program for the general population whose benefits would be limited to persons who incur unusually long hospital stays or large health expenses. The program would be administered by the Federal Government and financed by social security taxes. As an alternative to the Government plan, employers and self-employed persons could purchase equivalent private health insurance. In addition, the proposal includes a Federal medical assistance plan which would replace and improve the present Medicaid program.

*Mixed private-public plans: The proposals of the Health Insurance Association, the American Medical Association and the American Hospital Association, and CHIP*

These proposals which have a broadly similar approach would all establish (a) an employer plan requiring or encouraging employers to offer specified private health insurance to their employees; (b) a plan for low-income persons administered and financed by Federal or State Government, or a combination of both; and (c) continuation of the Medicare program or provision of other special coverage for the aged. Special arrangements or plans would also be provided under these proposals to assure coverage for self-employed and other persons. While coverage under a plan of the NHI programs would be available to the entire population, some persons would still find it advantageous to obtain private health coverage outside of the program.

*Federal program: Health Security*

This bill would establish a program covering the entire population to be financed through a combination of social security taxes and general revenues, and to be administered by the Federal Government.

*National Health Insurance costs*

In order to determine the economic impact of the proposed bills, it was first necessary to project costs without any bills. It was estimated that with no national health insurance program in fiscal 1980, personal health care expenditures would reach \$223.5 billion, 31 percent coming out of pocket, nearly 31 percent through private insurance, and 38 percent from public funds, largely Federal.

Total personal health expenditures by source of funds for each bill are shown on the attached table.

<sup>10</sup> Waldman, Saul, *National Health Insurance Proposals, Provisions of Bills Introduced in the 94th Congress as of February 1976*, HEW Publication No. (SSA) 76-11920.

<sup>11</sup> Waldman, Saul, *Executive Summary: A Comparison of the Costs of Major National Health Insurance Proposals by Gordon R. Trapnell Associates*, Department of Health, Education, and Welfare.

## SUMMARY

There are advantages and disadvantages to each of the proposals. For example, catastrophic coverage is highly inflationary, encouraging use of expensive equipment and services; private insurance may perpetuate the current cost crisis; and Federal insurance may create a massive, inefficient bureaucracy. Cost-sharing may be hard on low-income families; income-related cost-sharing may be difficult to administer; and no cost-sharing may encourage overutilization. The list of problems goes on, but so does the need for some national program of insurance. Undoubtedly, some program will be enacted in the next few years, but we must wait to find out which one.

TOTAL U.S. HEALTH CARE EXPENDITURES, AND EXPENDITURES COVERED BY ALTERNATIVE NATIONAL HEALTH INSURANCE PROGRAM, BY CHANNEL OF ADMINISTRATION, FISCAL YEAR 1980

[In billions]

Channel of payment	No NHI program	Long-Ribicoff	Administration (CHIP)	Health Insurance Association of America	American Medical Association	American Hospital Association	Health Security
Total Health Care Expenditures							
Total U.S. expenditures.....	\$223.5	\$233.3	\$234.8	\$234.5	\$243.8	\$248.5	\$248.3
Private sector.....	139.0	135.6	133.6	131.6	143.6	133.8	47.4
Out-of-pocket.....	70.1	66.0	60.5	67.9	59.5	50.1	38.2
Private insurance.....	66.3	67.1	70.6	71.2	81.7	81.7	7.6
Other private.....	2.6	2.5	2.4	2.5	2.4	2.0	1.6
Public sector.....	84.5	97.7	101.3	102.9	100.2	114.7	200.9
Federal Government.....	59.3	74.9	68.7	57.0	82.0	55.7	189.4
State and local government.....	21.5	19.1	21.0	21.0	14.5	12.4	10.4
Government insurance premiums.....	3.7	3.7	11.0	14.9	3.7	6.6	1.1
Expenditures Covered by National Health Insurance Program <sup>1</sup>							
Total expenditures.....		80.4	121.6	125.9	140.0	159.0	181.7
Private sector: Private insurance.....		6.8	44.0	47.8	64.7	67.7	0
Public sector.....		73.6	77.6	78.1	75.3	91.3	181.7
Federal Government.....		58.9	56.6	51.7	66.6	80.5	176.7
State and local government.....		12.1	11.4	12.6	6.1	5.3	5.0
Government insurance premiums.....		2.6	10.6	13.8	2.6	5.5	0

<sup>1</sup> The national health insurance program is defined to include the newly established plan or plans, and the medicare and residual medicaid program if these programs are retained under the proposal.

Source: Gordon R. Trapnell Associates, "A Comparison of the Costs of Major National Health Insurance Proposals," prepared for the Office of the Assistant Secretary for Planning and Evaluation, Department of Health, Education, and Welfare, September 1976.

## CLOTHING AND TEXTILES: SUPPLIES, PRICES, AND OUTLOOK FOR 1977\*

(By Annette Polyzou, Consumer and Food Economics Institute, Agricultural  
Research Service, USDA)

*Clothing expenditures and prices.*—Consumer expenditures for clothing and shoes averaged \$345 per person during the first three quarters of 1976, according to preliminary figures (table 1). This represented a 5.2 percent increase in per capita expenditures over 1975. Approximately half of this increase was caused by a rise in the level of prices and about half resulted from increased buying—a real increase of 2.8 percent in dollars of constant value.

The price level for apparel and upkeep, as measured by the Consumer Price Index (CPI), averaged 3.5 percent higher during the first three quarters of 1976 than during the same period in 1975 (table 2). Increases among the three apparel subgroups averaged 3.3 percent for men's and boys' clothing, 2.6 percent for women's and girls' clothing, and 3.5 percent for footwear. Such increases for apparel items were less than the 6-percent increase for all items of the CPI.

The economy enjoyed a substantial growth during the first quarter of 1976. Real gross national product (GNP), the total output of goods and services adjusted for inflation, grew 9.2 percent on an annual basis during this period. This growth was largely due to a sharp increase in consumer expenditures. Consumers' "real" purchasing power increased substantially during this period due to strong gains in personal income and a relatively small increase in the price level. Retail sales increased greatly during the first quarter with emphasis on durable goods and spring apparel, trade sources reported. Retailers responded to this large increase in sales by rapidly building up inventories.

Economic growth slowed considerably during the second quarter. Real GNP expanded 4.5 percent on an annual basis during this period, less than half the 9.2 percent growth of the first quarter. The CPI rose at an annual rate of 6.4 percent, more than double the 2.9 percent annual rate of the first quarter. Various trade reports cited reasons for the sluggishness of retail sales that was apparent during the second quarter:

An increase in the price level;

Lower income tax refunds in 1976 than in 1975;

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\*Information in this paper is based on reports available during the period January through October 1976. Discussion of business trends is based on trade reports or news items in the *Daily News Record*, the *Wall Street Journal*, *Business Week*, the *New York Times*, and the *Washington Post*. Other sources include the following: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* 56(1), Part II, and 56(8), 1976. U.S. Department of Labor, Bureau of Labor Statistics, *News* (Consumer Price Index monthly reports). U.S. Department of Agriculture, Economic Research Service, *Cotton and Wool Situation*, CWS-4 and CWS-7 (1976). *Textile Organon* XLVII(9), September 1976.

A slowdown in the rate of purchasing by consumers to compensate for their fast-paced buying during the first quarter; and

Unseasonably cool weather in many parts of the country which discouraged purchases of such hot-weather merchandise as summer apparel.

The second quarter revealed a shift by consumers from strong buying of apparel to durable goods, trade sources reported. The big losers during the period included many lines of men's and women's non-sportswear apparel and children's wear. Retailers scheduled early clearance sales and took deep markdowns on regular stock in order to work down the large inventories accumulated during the first quarter.

Preliminary third quarter figures indicated that real GNP expanded at 4 percent on an annual basis. Retail sales remained a bit sluggish during most of the third quarter although there was a fairly high volume of consumer purchases of fall apparel, especially sweaters, three-piece tailored suits and coordinated sportswear for men and women. Trade reports indicated that retailers still felt the reluctance of consumers to purchase apparel and other nondurables during this period. They attributed this reluctance to lack of strong fashion leadership and to increased prices of fall apparel. Retailers continued to work down their inventories through markdowns and drastic reduction of future buying.

The seasonally adjusted wholesale price index for textile products and apparel rose 1.4 percent during the period June through October. Monthly rates for the period were 0.1, 0.7, 0.3, -0.1 and 0.4 percent. This indicates the probability of price increases for apparel at the retail level during the months ahead. This makes less likely any large rise in average spending on clothing in dollars of constant value. Consumers are likely to be quite selective in their purchases of apparel as they seek attractive price-value relationships.

*Supplies of raw materials.*—Production of textile mill products fluctuated only slightly from month to month during the first 7 months of 1976. Average production was about 36 percent higher than at its depressed level during the same period in 1975.

U.S. mill use of fibers in 1976 (based on data for the first 9 months) is estimated at about 54 pounds per capita, including 15.8 pounds of cotton, 0.6 pound of wool and 37.7 pounds of manmade fibers. This compares with 1975 per capita use of 49.6 pounds, including 14.2 pounds of cotton, 0.5 pound of wool and 34.9 pounds of manmade fibers. An apparent trend toward natural fibers and a natural look in clothing during 1976 has caused increased demand for cotton and wool.

During the period 1965 to 1973, mill use of all fibers on a per capita basis generally increased from 43.9 to 59.3 pounds, but was lower in 1974 and 1975 than in 1973 (52.4 and 49.6 pounds per capita, respectively). Mill use of cotton on a per capita basis, however, decreased from 23.3 pounds in 1965 to an estimated 15.8 pounds in 1976; mill use of wool decreased from 2 pounds to 0.6 pound. Mill use of manmade fibers (which comprise the remaining fiber use) followed the trend of total fiber use.

The 1976 cotton crop is expected to be nearly a fourth larger than last year's crop despite recent deterioration in production prospects. Tight supplies and reduced stocks are, however, expected to prevail



during the 1976-77 cotton season due mainly to larger exports (at least a fourth more than for last season).

Cotton prices rose sharply during the 1975-76 season due to increased demand for all-cotton denim and corduroy as well as larger cotton use in blends with manmade fiber. Most qualities of cotton are currently priced about 25-30 cents per pound higher than a year ago. Prices for mill-delivered cotton are presently about 50 percent higher than for manmade fiber staple.

Average U.S. mill use of cotton for the first 9 months of 1976 was approximately 20 percent higher than the average mill use of cotton during the same period in 1975. Current high prices of cotton relative to other fibers and tight cotton supplies may encourage greater substitution of manmade fiber for cotton; thus, U.S. mill use of cotton may be moderately smaller during the 1976-77 season.

U.S. wool production in 1976 is estimated at 10 percent below 1975 and 18 percent below 1974. The decrease in wool production during the past several years has been attributed to a decrease in the number of sheep and lambs as well as to a decrease in the average fleece weight. Strong wool prices resulted in a 15 percent reduction in commercial slaughter of sheep and lambs during the first half of 1976 compared with the same period in 1975. If this reduction in slaughter levels continues through 1977, U.S. wool production may become stabilized or possibly increased.

U.S. farm prices of wool have moved upward since mid-1975 due to greater demand and smaller domestic supplies. Prices are expected to increase moderately during the next few months.

U.S. mill use of raw apparel wool for the first 8 months of 1976 was 25 percent higher than during the same period in 1975. Domestic demand—mill use plus import-balance—between January and August of 1976 was approximately 51 percent higher than during the same period a year earlier. Such a strong increase in demand reflects the fashion trend towards the natural look and the renewed interest in wool as a natural fiber for use in sweaters and men's vested suits. The outlook for wool during the 1976-77 period includes strong demand resulting in relatively high mill use and imports of wool textiles. Consumers are likely to see more wool and wool blends in the market.

Shipments of manmade fibers by U.S. producers during the first 8 months of 1976 were approximately 16 percent higher than in the same period in 1975, according to *Textile Organon* (September 1976).

According to trade reports, demand for polyester filament was very weak during 1976 due to the shift in apparel styles from knit fabrics towards the natural look of woven or spun fabrics. Polyester filament producers made sharp production cutbacks most of this year while numerous double-knit textile plants closed as a result of the slack in the polyester filament market. Filament prices dropped steadily during 1976. DuPont, the largest producer of polyester filament, steadily cut the price of polyester feeder yarn from a high of 87 cents per pound during the early part of the year to 50 cents per pound in October. Trade sources expect that further price decreases may be averted during the latter part of 1976 as a result of sharp production cutbacks. As of October 27, 1976, trade reports indicate the following trends: The price of polyester staple is expected to increase as a result



of increased demand for the fiber by domestic mills. Mills are expected to switch production from 50-50 to 65-35 polyester-cotton blends for bed sheets and print cloth due to the high price and scarce supplies of cotton. There may also be a shifting from all cotton to low-blend polyester-cotton for a substantial portion of the denim market, primarily for improved performance. By increasing the price of polyester staple, polyester producers hope to recover the losses incurred by polyester filament. A price increase for rayon is also anticipated due to increased demand for rayon by mills seeking to replace relatively expensive cotton with cheaper rayon staple. Prices for acrylic staple, which increased in recent months, may continue to do so for the remainder of 1976. Acrylic simulates the natural-fiber look of wool and is benefiting from the strong market for sweaters. According to fiber producers, the above price increases of polyester staple, rayon, and acrylic are necessary in view of increasing costs of raw materials and production.

TABLE 1.—ANNUAL EXPENDITURES ON CLOTHING AND SHOES

Years <sup>1</sup>	Per capita expenditures		Percent of expenditures for personal consumption		Aggregate expenditures (billions)	
	Constant dollars (1972)	Current dollars	Constant dollars (1972)	Current dollars	Constant dollars (1972)	Current dollars
1947-63.....	203	142	8.6	9.1	33.6	23.5
1964-65.....	225	169	8.0	7.9	43.4	32.7
1966-71.....	242	214	7.6	7.7	48.8	43.1
1972.....	264	264	7.5	7.5	55.1	55.1
1973.....	281	291	7.7	7.6	59.2	61.3
1974.....	278	307	7.8	7.3	58.9	65.1
1975.....	287	328	8.0	7.2	61.3	70.0
1976 <sup>2</sup> .....	295	345	7.8	7.0	63.3	74.2

<sup>1</sup> Earlier years are grouped on basis of similarity in level of per capita expenditures in 1972 dollars.

<sup>2</sup> Preliminary figures—average of estimates for 1st 3 quarters of 1976 (i.e., seasonally adjusted quarterly totals at annual rates).

Source: Department of Commerce, revised estimates. "Clothing and shoes" include nondurable goods only.

TABLE 2.—ANNUAL PERCENTAGE CHANGE IN SELECTED INDEXES OF CONSUMER PRICES

Consumer Price Index	1972	1973	1974	1975	<sup>1</sup> 1976
All items.....	+3.3	+6.2	+11.0	+9.1	+6.0
Apparel and upkeep <sup>2</sup> .....	+2.1	+3.7	+7.4	+4.5	+3.5
Men's and boys' clothing.....	+1.3	+3.7	+7.9	+4.3	+3.3
Women's and girls' clothing.....	+2.4	+3.5	+6.0	+2.4	+2.6
Footwear.....	+2.8	+4.2	+6.1	+4.4	+3.5

<sup>1</sup> Preliminary estimates—average for first 3 quarters of 1976 compared with average for first 3 quarters of 1975.

<sup>2</sup> Also includes infant's wear, sewing materials, jewelry, and apparel upkeep services, for which indexes are not available.

Source: Bureau of Labor Statistics.



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